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STATE OF SOUTH CAROLINA

REPORT

OF THE

STATE COMMISSION OF FORESTRY

FOR THE YEAR

JULY 1, 1980 TO JUNE 30, 1981



LEONARD A. KILIAN, JR., State Forester

COLUMBIA, S. C.

Printed Under the Direction of the
State Budget and Control Board

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*To Honorable Richard W. Riley, Governor and to the
General Assembly of South Carolina:*

Sirs:

Pursuant to Section 3 of Act of General Assembly creating the State Commission of Forestry, approved April 26, 1927, which provides that the Commission shall "inquire into and make annual report upon forest conditions in South Carolina, with reference to the preservation of forests, the effect of the distribution of forests upon the general welfare of the State, and other matters pertaining to the subject of forestry and tree growth including recommendations to the public generally as to reforestation," I have the honor to submit the report of the Commission for the period of July 1, 1980 to June 30, 1981.

Respectfully submitted

STATE COMMISSION OF FORESTRY

A. Brandon Taylor, Jr., Chairman

STATE COMMISSION OF FORESTRY

A. Brandon Taylor, Jr., *Chairman*

S. C. STATE COMMISSION OF FORESTRY

MEMBERS OF THE COMMISSION

A. Brandon Taylor, Jr., *Chairman*, Spartanburg

C. H. Niederhof, *Vice Chairman*, Charleston

Joseph C. Woodard, Sr., Eastover

Howard P. Rhodes, Estill

M. Calhoun Colvin, Holly Hill

Boris Hurlbutt, Walterboro

Gary H. Slavens, Florence

Eugene H. Kneece, Jr., Aiken

Dr. William L. Atchley, *President*, *Clemson University*, Clemson

ADMINISTRATION

Leonard A. Kilian, Jr., State Forester and Secretary to the Commission

Claude F. Barden, Executive Assistant to State Forester

Walter T. Ahearn, Staff Director

John M. Shirer, Division Director, Forest Engineering and Logistics

Chauncey R. Nichols, Division Director, Field Operations

Robert J. Gould, Division Director, Administration



Mr. and Mrs. A. Brandon Taylor, Jr. are congratulated by Governor Richard W. Riley at the February 27, 1981 dedication of the new forest tree seedling processing building at the A. Brandon Taylor, Jr. Forest Tree Seedling Nursery, formerly known as the Ridge Nursery.

FOREWORD

Interest in the reforestation and protection of forest land in South Carolina began as early as 1787 when a law was passed which provided for the punishment of any person who wilfully, maliciously or negligently caused fire to do damage to the property of another. Between 1787 and 1912 some eleven bills were passed concerned with forestry, largely dealing with the protection of the forest from fire. Increasing activities in lumber and naval stores directed attention of thoughtful individuals to the fast disappearing timber supply. The growing interest in the future of South Carolina's forest resources culminated in the Act of the General Assembly of South Carolina (1976 Code of Laws, Volume 16, Title 48, Chapter 23), April 26, 1927, creating the State Commission of Forestry. The first appropriation of \$4,000 was made by the General Assembly in 1928.

The first organized forest fire control efforts were initiated in 1928 when groups of landowners in cooperation with the S. C. State Commission of Forestry formed five forest fire protection organizations for the control of woods fires on some 195,000 acres of woodland. These Forest Protective Associations, as they were known, grew in number and size until 1944 when 24 counties had organized fire protection organizations.

The year 1945 was a banner year for forest fire protection, for it was then that the General Assembly passed the South Carolina Forest Fire Protection Act (1976 Code of Laws, Volume 16, Title 48, Chapter 33) which extended organized forest fire protection to every county in South Carolina—the first of any of the southeastern states to take such a step.

Paralleling the growth of forest fire protection, reforestation of cut-over and idle land also came in for ever increasing emphasis. Just two years after the Act creating the State Commission of Forestry, the General Assembly authorized the S. C. State Commission of Forestry to establish a nursery and grow forest tree seedlings. This was done on a 5½-acre tract near Camden where 731,400 seedlings were raised the first year. This program has grown to four state nurseries and one industry-operated nursery which now produce some 50 million forest tree seedlings annually, both pine and hardwood, for planting throughout South Carolina. In 1961 attention was given to improving the quality of seedlings available for planting in South Carolina by establishing seed orchards of superior trees through a cooperative Tree Improvement Program involving both state and industrial interests.

Direct assistance to farmers and other landowners in managing their forest land began in the winter of 1930-31 as a demonstration in Fairfield County of proper thinning, measurement of board foot content of standing timber and use of equipment in suppression of forest fires. Under a cooperative agreement with the county agricultural agents, such demonstrations were held just two years later in 33 counties. Such direct assistance has grown through the years and has expanded to include

individual forest land examinations, 2,768 of which were made by Commission foresters this fiscal year. In addition to these examinations, Forestry Commission foresters marked timber for sale for 294 landowners.

From the very beginning of activity by the State Commission of Forestry, education has been a prime function in the fields of fire protection, reforestation and forest management. In the fall of 1928, at the South Carolina State Fair, an exhibit program was initiated that has been carried on continuously since that time. Each year the Forestry Commission places exhibits promoting a forest conservation concept in the State Fair and in every county fair that provides the space. The year 1929 saw expansion of the Forestry Commission's educational efforts when, in cooperation with the American Forestry Association, one, then later three, motion picture trucks showed movies and distributed literature to schools, clubs and other groups. In 1930 it was reported that 320 shows and lectures reached a total of 54,000 men, women and children. An additional boost was given the school program when in 1931, in cooperation with the office of the Supervisor of Vocational Agricultural Education, forestry was added as a study in Vocational Agriculture classes throughout the state.

At present, heavy emphasis continues through all media available — schools, clubs, civic groups, radio and television and the press in telling the forest conservation story and the needs of the future.

It is expected that the nation's demand for softwood from the South will increase from the present 35% to more than 50% by the year 2020. Further, pressure on the available supply of hardwood will increase proportionately. The outlook presents both a challenge and a distinct opportunity to increase appreciably the contribution of the wood-using industry to the economic health of South Carolina. Multiplied many times also will be demands for other uses of the forest — recreation, wildlife management, water conservation and a myriad of other needs in the area of aesthetics. The South Carolina State Commission of Forestry has been concerned through the years with all aspects of forest conservation and will continue to promote by every means available the wise use of South Carolina's forest resources to meet the demands of the future.

ADMINISTRATION

PERSONNEL

Workforce

The South Carolina State Commission of Forestry has a total of 642 authorized positions classified into 54 separate job categories. The majority of these positions, 551 (85.83%), are directly involved in program activities. The remaining 91 positions (14.17%) are involved in required support activities including administration, secretarial, clerical, maintenance and service.

Safety

Most Commission personnel work in positions having a higher than normal risk of injury. Our safety program is directed toward reducing this risk and includes specialized training in hazardous operations, installing guards and protective devices on equipment, and providing personal protective equipment such as hard hats and goggles where needed. In addition, safety is stressed by supervisors in regular personnel meetings. Even with these precautions, there were 66 job related injuries reported this past fiscal year. Sixty-four of these were minor resulting in no hospitalization or permanent disability. Unfortunately, there was one fatality resulting from a heart attack and one hospitalization. The increase in job related injuries can be attributed to a tremendous increase in forest fire occurrence during the year.

Motor vehicle accidents increased from the preceding year, with eleven accidents occurring. Six of these were classified as being preventable by the operator.

In an effort to provide a work environment as free from safety hazards as possible and to assure our compliance with applicable OSHA regulations, courtesy inspections of all field facilities as well as the central office area were performed by a representative of the South Carolina Labor Department at our request.

Employment

Of the 75 vacancies that occurred during the fiscal year, only 56 were filled. Budgetary reductions necessitated our holding many positions open longer than normal until sufficient funds were available. A total of 910 job applicants were interviewed for the 56 positions filled.

Affirmative Action

Affirmative Action continued to be emphasized throughout the year. The Commission's Personnel Section conducted affirmative action training for all key supervisory personnel. Recruitment was stressed to maintain an applicant pool representative of the available work force. Job applicants and new personnel hired fall into the following categories:

	<i>White Males</i>		<i>Black Males</i>		<i>White Females</i>		<i>Black Females</i>		<i>Total</i>	
Applicants	631	69.34%	57	6.26%	187	20.55%	35	3.85%	910	100%
New Employees	33	58.93%	8	14.29%	13	23.21%	2	3.57%	56	100%

FINANCIAL

Fiscal year 1980-81 completes the first full year of utilizing a completely new double entry accounting and reporting system. This has been implemented through the use of teleprocessing in cooperation with the University of South Carolina. The statewide distribution of supplies from the Central Warehouse and seven district shops is controlled by this system as well as fixed assets which are maintained in this system with the capability of depreciation. The system allows continuous monitoring of all fund and periodic management oriented financial and statistical reports.

FINANCIAL STATEMENT
S. C. STATE COMMISSION OF FORESTRY
July 1, 1980 - June 30, 1981

RECEIPTS

Operating Revenue from 1979-80	\$ 343,147.12
Cap. Imp's — Bond Proceeds from 1979-80	882.31
Sand Hills Forest — Federal from 1979-80	593,526.24
Young Adult Conservation Corp. from 1979-80	14,443.73
Deficiency Appropriation from 1979-80	104,942.50
Rural Fire Prevention & Control	359,400.00
Rural Forestry Assistance	217,680.00
Planning Assistance	15,000.00
Insect & Disease	116,018.00
PL 566 — Watersheds	31,182.83
R.C. & D. — Technical Assistance	52,461.20
Agriculture Conservation Program	15,400.00
Forestry Incentive Program	68,550.00
Resource Planning Act	19,500.00
Urban Forestry Assistance	19,875.00
Water Quality	24,092.00
Anosus Tech. Imp.	14,000.00
Southern Pine Beetle — Sup.	109,200.00
R.F.A. — Boiler Conversion	29,743.13
Sand Hills Forest — Federal	330,563.27
Young Adult Conservation Corps	117,622.00
State Appropriation	8,785,088.00
Supplemental Appropriation	627,972.00
Civil Contingent — Transfer	117,758.53
Cap. Imp's Bond — Proceeds	145,758.18
Dual Employment	1,155.65
Sale of Equipment	139,148.04
Miscellaneous	5,561.94
State Forest — Manchester	30,904.93
General Revenue — Equipment	12,100.39
General Revenue — Firebreak Plowing	23,078.49
General Revenue — Prescribed Burning	2,349.50
General Revenue — State Forest Manchester	98,590.37
General Revenue — Hunting Permits — Manchester	4,471.50
General Revenue — Fishing Permits — Manchester	1,568.30
General Revenue — Nurseries	571,435.65
General Revenue — Marking Timber	13,051.31
General Revenue — Miscellaneous	2,043.48
Total Receipts — Forestry	\$13,179,265.59
Less Receipts to General Revenue Account	-728,688.99
Less Appropriation Lapsed to General Fund	-2,231.27
Total Receipts Available for Expenditure	\$12,448,345.33
Less Expenditures	-11,783,225.93
Balance — Forestry Commission	\$ 665,119.40

FISCAL YEAR 1980-81*Funds Available:*

Forestry Commission —	
Operating	\$10,499,819.07
Cap. Imp's — Bond Proceeds ...	146,640.49
Sand Hills Forest — Federal ...	924,089.51
Federal YACC	132,065.73

State Appropriation

Supplemental	627,972.00
Civil Contingent — Transfer	117,758.53

Total	\$12,448,345.33
-------------	-----------------

Expenditures:

Forestry Commission —		
Operating	\$11,171,963.33	
Cap. Imp's — Bond Proceeds ...	146,640.49	
Sand Hills Forest — Federal ...	337,796.02	
Young Adult Conservation Corp.	126,826.09	
Total	\$11,783,225.93	
Balance Carried Forward to 1981-82		\$665,119.40

Breakdown of Balance:

Operative Revenue	\$	73,586.27
Sand Hills Forest — Federal ...		586,293.49
Young Adult Conservation Corp.		5,239.64
Total	\$	665,119.40

FOREST ENGINEERING AND LOGISTICS

RADIO

The Forestry Commission's two-way radio communication system continued to perform satisfactorily throughout the fiscal year even through much of the equipment has been in service for a long number of years. The radio engineer is headquartered at the Central Radio Communications Maintenance and Repair Shop in Columbia. Seven radio technicians assigned to the district headquarters handled the installation and maintenance activities of the Commission's radio communication program at the district and county level.

Inventory of Radio Improvements and Equipment:

- 8 Remote Control Base Units, 330 watts
- 1 Remote Control Base Unit, 375 watts
- 1 Mobile Relay Base Unit, 120 watts
- 27 Local Control Base Units (Tube Type)
- 121 Local Control Base Units (Solid State)
- 3 Mobile Units (Transistorized), 80 watts (For mobile relay)
- 4 Mobile Units (Tube Type)
- 108 Mobile Units (Transistorized), 40 to 110 watts
- 478 Mobile Units (Transistorized), 15 to 30 watts
- 96 Portable Units, 1½, 3 and 5 watts
- 217 Auxiliary receivers
- 8 Radio Towers

Equipment Maintenance Shop

All regular and specialized fire control equipment is modified and processed for field use at the Commission's Central Repair Shop in Columbia.

Only one new medium suppression tractor and one medium transport truck were purchased during the fiscal year for replacement of old equipment. Six ½ ton pickups were purchased for replacement of old units assigned to County Rangers. Three ½ ton pickups were purchased as replacements for units assigned to district mechanics.

Central shop personnel made numerous repairs to Forestry Commission vehicles and equipment and manufactured many special fire control and forest management items. Some of the work conducted at the Central Shop included construction of medium suppression units transport bodies; outfitted medium tractors for field use; rebuilt fire plows; modified safety canopies; constructed lock rim safety cages for all district shops, nurseries, and state forests; redesigned and improved fire plows; conducted major equipment overhauls of field assigned units; modified and repaired specialized equipment for use in aerial tanker program; rebuilt wrecked equipment; constructed seedling carts for the nursery program; provided 232 man-days of maintenance assistance to the dis-

tract repair shops; performed major equipment overhauls and repairs on field equipment; built tractor bumpers, truck ramps, draw bars, plow spindles and numerous other items associated with the equipment program. The Central Repair Shop provides a complete line of equipment construction and maintenance to all of the field units including state forests and nurseries.

Inventory of Basic Fire Tools and Equipment

June 30, 1981

- 1,256 Back Pack Pumps
- 3,921 Fire Rakes
- 1,414 Fire Swatters
- 662 Backfire Torches
- 6 Heavy Suppression Tractor-Plow units w/Transports
- 223 Medium Tractor-Plow Units w/Transports
- 4 Heavy Lowboy Trailers
- 46 Ranger Pickup Trucks
- 1 ½-ton Jeep
- 11 Mechanics and Radio Technicians Station Wagons
- 1 2-ton Jeep
- 21 ½-ton Pickup Trucks (Mechanics)
- 18 Ground Tankers
- 2 Forest Fire Simulators
- 3 Fire Headquarters Trucks

Tankers

The number of ground tankers in the field totals 46. Tankers range in capacity from 260 gallons to 5,000 gallons and are stationed in various parts of the state. Listed below are location, tanker size and year put into service.

GROUND TANKERS

<i>Location</i>	<i>Capacity (Gallons)</i>	<i>Year in Service</i>
Richland	300 Ford 350	8/69
Orangeburg	2000 Trailer	3/70
Camden	2000 Trailer	1/70
Florence	1200 6 × 6	3/70
Florence	1200 6 × 6	6/70
Central Shop	5000 Trailer	5/70
Richland County	400 Ford 350	5/72
Marlboro County	700 (4WD, International)	6/73
Central Shop	700 (4WD, International)	6/73
Lexington County	260 (4WD, Chevrolet)	6/73

GROUND TANKERS

<i>Location</i>	<i>Capacity (Gallons)</i>	<i>Year in Service</i>
Camden	260 (4WD, Chevrolet)	6/73
*Greenwood County	260 (4WD, Chevrolet)	6/73
Berkeley County	260 (4WD, Chevrolet)	3/76
*Florence County	260 (4WD, Chevrolet)	3/76
Jasper County	260 (4WD, Chevrolet)	3/76
Clarendon County	260 (4WD, Chevrolet)	3/76
Chester	260 (4WD, Chevrolet)	5/77
Charleston	260 (4WD, Chevrolet)	5/77
Hampton	260 (4WD, Chevrolet)	5/77
Marion	260 (4WD, Chevrolet)	5/77
Oconee	260 (4WD, Chevrolet)	5/77
Sumter	260 (4WD, Chevrolet)	5/77
Allendale	260 (4WD, Chevrolet)	5/77
Georgetown	260 (4WD, Chevrolet)	5/77
Pickens	260 (4WD, Chevrolet)	5/77
Marlboro	260 (4WD, Chevrolet)	5/77
Horry	260 (4WD, Chevrolet)	5/77
Orangeburg	260 (4WD, Chevrolet)	5/77
Kershaw	260 (4WD, Chevrolet)	6/78
Lancaster	260 (4WD, Chevrolet)	6/78
Richland	260 (4WD, Chevrolet)	6/78
Williamsburg	260 (4WD, Chevrolet)	6/78
Abbeville	260 (4WD, Chevrolet)	6/78
Laurens	260 (4WD, Chevrolet)	6/78
Saluda	260 (4WD, Chevrolet)	6/78
Barnwell	260 (4WD, Chevrolet)	6/78
Calhoun	260 (4WD, Chevrolet)	6/78
Union	260 (4WD, Chevrolet)	6/78
Beaufort	260 (4WD, Chevrolet)	6/78
Dorchester	260 (4WD, Chevrolet)	6/78
Chesterfield	260 (4WD, Chevrolet)	6/79
Lee	260 (4WD, Chevrolet)	6/79
Edgefield	260 (4WD, Chevrolet)	6/79
Cherokee	260 (4WD, Chevrolet)	6/79
Greenville	260 (4WD, Chevrolet)	6/79
Fairfield	260 (4WD, Chevrolet)	6/80

*Replaced with ½ ton units in 1980-81.

FIELD OPERATIONS

FOREST MANAGEMENT

The major emphasis of the Commission's forest management program is assisting small private owners in the management of their woodland properties. To date more than half the total woodland area of the state has been examined by foresters and recommendations made to increase their contributions. More than 38,070 landowners have been assisted with forest management plans.

The 1978 Forest Survey shows that 65 percent of the total land in South Carolina is classified as woodland. This is an increase of 92,000 acres since 1968. The ownership pattern changed slightly as one percent of the land in farmer and miscellaneous private shifted to forest industry. Farmer ownership continued to shift to miscellaneous private. Farmers dropped from 54% of the small industrial private ownership in 1968 to 49% in 1978. Farmers and miscellaneous private owners hold more than 73% of the forestland; forest industry approximately 18%; and public ownership, 9%.

Foresters of the State Commission of Forestry are available to give forest management assistance to any landowner in the state upon request. This assistance consists of an examination of the woodland area, after which the forester prepares and furnishes to the owner a written plan for managing his forest property. This includes recommendations on site preparation, tree planting, protecting the woodland from wildfire, insects and diseases, improving stands of trees, intermediate thinnings, and harvest cuttings as needed. Consideration is given to the improvement of soil, water, wildlife, recreation, aesthetics, and other environmental and ecological aspects along with timber production.

The working relationship established between the S. C. State Commission of Forestry and the ten councils of Government was continued throughout the year. All Commission foresters work with Regional Planning Councils wherever needed.

During 1980-81 the Commission had a total of 34 man-years devoted to assisting small private landowners with forest management on their lands, including the small watershed activities. These men prepared 2,733 forest management plans. Timber on 297 tracts covering 3,554 acres was marked preparing 4,737,342 board feet of sawtimber and 20,300 cords of pulpwood for the market.

Where the forest management needs of the owner indicate it, Commission foresters encourage the landowner to employ a private consulting forester. Commission foresters also work closely with industry foresters who give direct assistance to landowners.

The demand for sawtimber was low for the fiscal year. Stumpage prices for sawtimber varied throughout the state but generally were below the previous year.

Four state tree nurseries were in operation during the 1980-81 year. The number of acres planted to trees in South Carolina increased slightly over the previous year. The nurseries are expected to increase seedling production to provide for the expanded needs of forest industry and the Forestry Incentives Program.

The greatest problem facing South Carolina landowners is reforestation of some 1.8 million acres of understocked private non-industrial woodland. The Forestry Commission will concentrate its efforts in this direction. The forest management program expansion will be aimed at assisting these small private landowners in getting more of this work accomplished. South Carolina cannot afford the loss from allowing these lands to remain unproductive. If we set 1.8 million acres as a goal and accomplish this in the next 20 years, the annual return to landowners would approximate \$27 million and the annual total business increase to the state could reach more than \$405 million. In the process, with proper consideration, environmental benefits can be increased in proportion to these economic benefits.

A Forestry Incentives Program providing landowners cost-sharing assistance for reforesting cutover woodland or other forest improvement practices was first funded by Congress in 1974. This program was continued this year and is expected to stimulate forest planting on non-industry private landowner woodlands at about the present rate. More details on this effort appear under the section on the Forestry Incentives Program.

Woodland Management Assistance

The 34 man-years of forest management time of foresters were directed toward assisting private landowners with their woodland management problems. Clemson University Extension foresters assisted in this program, primarily with promotional demonstration effort.

Any landowner in the state can receive assistance. A forester, with the landowner or his agent, will look over the woodland, give on-the-ground advice and prepare a report covering recommendations. This includes any cutting, fire protection, insect and disease control, timber stand improvement, reforestation, wildlife and recreational measures that are needed. No charge is made for this woodland examination.

When cutting of timber is recommended on small tracts, a forester of the State Commission of Forestry may, at the request of the landowners, mark the timber to be cut, provide the landowner with an estimate of the volume marked for cutting, and furnish a list of prospective buyers, a suggested form for advertisement, and a sample timber sale agreement. The charge for this service during the fiscal year was \$2.00 per thousand board feet for sawtimber and 60 cents per cord for pulpwood.

Landowners are referred to consulting foresters when the volume of timber to be cut or the management needs of the ownership indicate the need of a consultant.

Prescribed burning plans are prepared for owners who want to burn in pine types. Prescribed burning is a technical measure which involves the application of fire to woodlands under conditions of proper weather, soil moisture, season, time of day, and forest type. Fire as a tool can be beneficial in the control of weed trees, seedbed preparation, control of "brown spot" disease of longleaf pine and reducing hazardous fuels. Recommendations for the use of prescribed fire are made only after very careful analysis with the landowner of the forest conditions to be sure that benefits will be greater than probable damages.

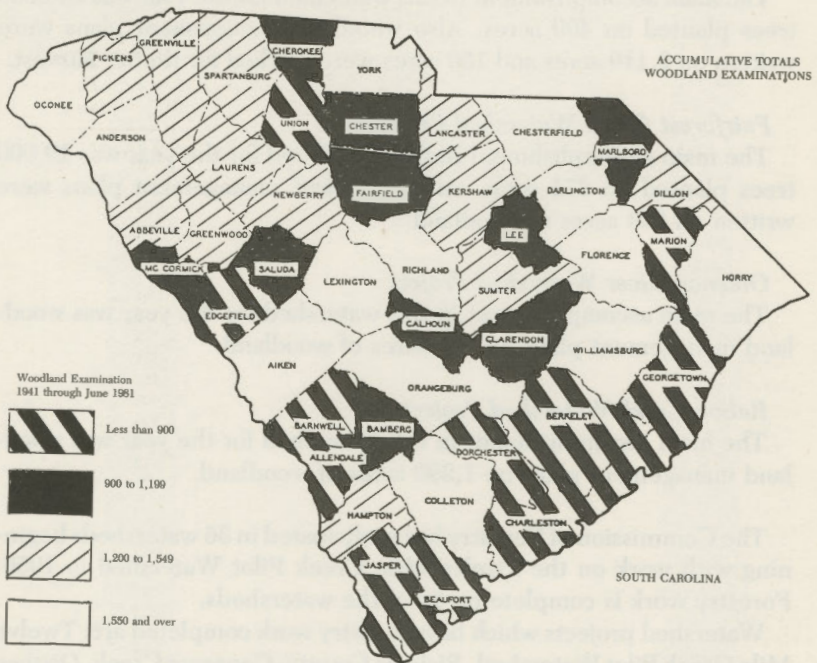
During the year Commission foresters made 2,733 examinations on 197,942 acres of forestland. They selectively marked 4,737,342 board feet of sawtimber and 20,300 cords of pulpwood for 297 landowners of 3,554 acres of forestland.

In addition to woodland examination and marking services, a large number of requests for general information and advice were answered by the Columbia, district, and project office technical forestry staffs. These requests included information on scrub hardwood control, timber stand improvement work, industry location data, markets, etc.

Commission foresters were able to service most requests for assistance with only one to four weeks delay. Additional personnel would be needed in some areas to promote and respond to additional requests.

WOODLAND MANAGEMENT ASSISTANCE 1980-81

County	Woodland Exams	Acres Examined	No. Tracts Marked	Volume Marked		Total Woodland Examinations 1941-June, 1981
				Bd. Ft.	Cds.	
Abbeville	51	4,647	7	—	568	1,200
Aiken	132	11,156	19	188,477	1,886	2,345
Allendale	25	2,348	1	254,967	19	552
Anderson	111	5,621	7	326,419	85	2,410
Bamberg	21	1,565	2	14,734	506	950
Barnwell	53	6,107	11	540,851	631	834
Beaufort	12	1,278	1	90,389	—	417
Berkeley	22	1,772	1	—	24	537
Calhoun	91	4,162	3	137,782	335	1,191
Charleston	26	1,845	2	—	73	504
Cherokee	30	1,985	7	—	384	1,021
Chester	33	2,885	1	—	160	1,025
Chesterfield	80	3,937	15	99,256	1,708	1,916
Clarendon	79	6,766	1	—	198	1,103
Colleton	81	7,966	3	—	393	2,120
Darlington	49	2,966	1	—	13	1,591
Dillon	61	3,849	3	4,000	187	1,230
Dorchester	17	1,423	—	—	—	673
Edgefield	32	2,960	2	—	369	683
Fairfield	46	5,586	3	92,506	385	1,169
Florence	93	5,916	12	411,914	527	2,232
Georgetown	18	1,755	4	144,738	185	431
Greenville	75	4,377	15	312,492	1,072	1,388
Greenwood	82	8,054	3	5,393	219	1,501
Hampton	79	4,904	4	635,288	195	1,297
Horry	46	1,964	4	73,201	41	1,914
Jasper	27	2,372	1	—	118	499
Kershaw	39	2,284	—	—	—	1,530
Lancaster	68	2,848	6	—	388	1,505
Laurens	61	7,333	2	—	386	1,452
Lee	20	1,131	—	—	—	950
Lexington	90	5,526	8	439,000	304	1,862
Marion	30	2,405	1	31,851	—	578
Marlboro	53	5,087	2	14,000	19	905
McCormick	30	2,619	4	—	319	1,113
Newberry	40	3,038	2	67,959	168	1,521
Oconee	96	8,747	62	249,584	1,876	1,693
Orangeburg	203	10,347	9	223,786	615	2,742
Pickens	62	2,826	16	46,183	1,480	1,540
Richland	113	6,030	20	253,176	429	2,074
Saluda	53	4,269	—	—	—	1,165
Spartanburg	44	2,803	17	67,396	1,656	1,456
Sumter	45	3,717	—	—	—	1,497
Union	41	5,024	3	12,000	271	656
Williamsburg	91	7,550	2	—	744	1,770
York	82	4,182	10	—	1,364	1,988
TOTALS	2,733	197,942	297	4,737,342	20,300	60,730



Consulting Forester Activity

Commission foresters continued to follow the practice of referring all appropriate cases to consulting and industry foresters wherever possible. Records show 545 cases were referred to consulting foresters and 362 cases were referred to industry foresters. Many additional request for assistance were referred to consulting foresters and industry foresters where no field work was done by Commission personnel.

Watershed Projects

A program to help control water runoff on the small watersheds and to protect bottomlands along the smaller streams from overflow was initiated some years ago through Public Law 566. The State Commission of Forestry has the responsibility of providing needed forestry assistance under agreement with the U. S. Forest Service. There were four of these small watershed projects active under Public Law 566 in the state. They are Clarks Fork-Bullocks Creek in York County, Fairforest Creek in Spartanburg and Union Counties, Oolenoy River in Pickens County and Rabon Creek in Greenville and Laurens Counties.

Clarks Fork-Bullocks Creek Watershed Project

The main accomplishment in this watershed for the year was 280,000 trees planted on 400 acres. Also woodland management plans were written on 2,110 acres and 150 acres were marked for timber harvest.

Fairforest Creek Watershed Project

The main accomplishment in this watershed for the year was 19,000 trees planted on 272 acres. Also woodland management plans were written on 804 acres of woodland.

Oolenoy River Watershed Project

The main accomplishment in this watershed for the year was woodland management plans on 251 acres of woodland.

Rabon Creek Watershed Project

The main accomplishment in this watershed for the year was woodland management plans on 1,299 acres of woodland.

The Commission of Forestry has participated in 36 watersheds beginning with work on the Twelve Mile Creek Pilot Watershed in 1956. Forestry work is complete on 32 of the watersheds.

Watershed projects which have forestry work completed are: Twelve Mile Creek Pilot Watershed, Pickens County; Coneross Creek, Oconee County; Wateree Creek, Fairfield County; Beaverdam Creek, Edgefield County; Brushy Creek, Anderson County; Hills Creek, Chesterfield County; Huff Creek, Greenville County; Big Creek, Anderson County; Maple Swamp, Marlboro County; Lynches Lake-Camp Branch, Florence County; Fishing Creek, York County; Duncan Creek, Laurens County; Wilson Creek, Anderson and Abbeville Counties; Wilson Creek, Greenwood County; Carters Branch-Muddy Creek, Marlboro County; Horse Range Swamp, Orangeburg County; Willow Swamp, Colleton and Bamberg Counties; Thicketty Creek, Cherokee County; Georges Creek, Pickens County; Hollow Creek, Lexington County; North Tyger, Spartanburg County; Beaverdam, Anderson and Oconee Counties; Jackson Mill Creek, Fairfield County; Eighteen Mile, Pickens County; Three & Twenty, Anderson County; Beaverdam Warrior Creek, Laurens County; Browns Creek, Union County; Cane Creek, Lancaster County; Little Lynches Creek, Kershaw and Lancaster Counties; Rocky Creek, Chester County; South Tyger River, Greenville County; and Upper New River, Beaufort and Jasper Counties.

Forest Products Utilization and Marketing

Sawtimber and Pulpwood Stumpage Prices for South Carolina

*Five-Year Period**

<i>Fiscal Year</i>	<i>Weighted Average Stumpage Price Per Thousand Board Feet Scribner Tree Scale</i>	<i>Weighted Average Stumpage Price Per Standard Cord</i>
1976-77	91.64	10.83
1977-78	98.00	10.66
1978-79	127.13	11.46
1979-80	138.08	12.71
1980-81	117.76	13.58

* Sales of timber marked by Commission foresters on private property

Average sawtimber stumpage prices were off sharply during this period. The first nine months of the year prices were somewhat below the 78-79 price level; however, the final three months of May, June, and July of 1981, prices showed some increase to the 1979-80 level. Demand was fair to poor, due to the high interest rate which in turn resulted in a slowdown of housing starts. Pulpwood prices remained fairly stable showing a slight increase.

During the year information was gathered from primary wood using industries for a commodity drain report for 1980. Emphasis was placed on the residue produced and its disposal.

The Commission continued its program of providing direct assistance to the wood using industry. The objective of all the utilization programs is to "stretch" the state's timber supply. These programs include logging and log yard analysis, sawmill improvement, roughmill improvement, improved drying and wood energy.

Time was also spent working with non-wood using industries in their search for wood residue that could be used as an energy source. Over 95% of all residue produced from primary wood using plants is used in some way. This leaves 5% or less available.

Other assistance consisted of providing detailed resource information to those interested in locating wood using industries in the state, or in enlarging existing operations. This type of information was provided to industry and the State Development Board. During the year Union-Camp Corporation announced plans to build a papermill in Richland County.

In addition, training was given to Commission field foresters and industry personnel in forest utilization and marketing procedures and wood protection. Also the Commission handled over 197 miscellaneous utilization, marketing and energy requests during the fiscal year.

Resource Conservation and Development Projects

The Resource Conservation and Development (RC&D) program is initiated and sponsored by local citizens. Federal, state and local government with industry and others work together on proposals these citizens consider necessary to develop a better way of life for all citizens in the area. The RC&D objective is to increase economic opportunities through the orderly development, conservation and improvement of all resources including land, water and woodlands.

During the past year funds were provided for an RC&D forester in the Lowcountry and Ninety-Six RC&D projects.

Lowcountry Resource Conservation and Development Project

Since its initiation in 1967 the Lowcountry RC&D Project has steadily worked to improve the area's economy through the wise use and development of its natural resources.

The following projects were completed by the RC&D Forester during the past fiscal year:

Wood Residue For Energy — A survey of secondary wood using industries was conducted to determine the type, the amount, and the subsequent use of their wood waste residues. It was hoped that through this survey an untapped energy resource might be discovered. Results from the survey indicated that the industries producing a significant amount of wood waste were either utilizing it themselves or selling it. In almost all cases a utilization for the wood residue had already been found and very little was simply being wasted.

Two seminars were held for homeowners interested in converting their home heating systems to wood burning systems. Positive and negative aspects of heating with wood were stressed, and a strong emphasis was placed on safety (both stove and chainsaw safety). Approximately ninety people attended the seminars.

Several visits were made to plants using woodfired boilers and a conference on wood energy was attended in North Carolina.

Prescribed Burning School and Demonstration

The annual prescribed burning school and demonstration was held in Berkeley County at the Santee Experiment Station. The school was sponsored jointly by RC&D, the Berkeley County Soil and Water Conservation District, the Clemson Extension Service, the South Carolina Forestry Commission, and the Southeastern Forest Experiment Station.

Twenty-five persons attended the school which consisted of a morning indoor session and an afternoon demonstration. The burning demonstration was rained out (again), but a tour was taken of the 33 year old prescribed burning plots located on the experiment forest.

An investigation was begun into the possibility of the use of Aerial Ignition Prescribed burning (AIPB) by private landowners. During the initial contact with the AIPB pilot, he seemed interested in working with private landowners.

Forest Management Tour — A forest management tour was arranged for cooperating agency personnel who work extensively with forest landowners (Clemson Extension Service, ASCS, and SCS). The tour included stops at natural regeneration sites for both pines and hardwoods, a cable logging operation site, and a hardwood fuel-wood chipping operation site.

Woodland Clinic — The Woodland Clinic was held at Colleton State Park with 65 student participants from four counties. Walterboro High School, a perennial power, took first and second places. The students were tested on a variety of forestry subjects including selective thinning, prescribed burning, tree identification, and mensuration.

The clinic was co-sponsored by the seven Soil and Water Conservation Districts within the RC&D area and the Lowcountry RC&D Project.

Other Projects — The RC&D Forester also aided several organizations with their projects. These projects included:

- the Penn Center Forestry Demonstration plots. This project is a joint effort between the Clemson Extension Service, the Westvaco CFM program, and Penn Center. RC&D helped by having fire lines plowed and two plots drum chopped.
- helping the Southeastern Forest Experiment Station in locating loblolly pine stands for a research project,
- helping Ruffin High School Vocational-Agriculture students mark a school owned tract of timber for a selective thinning, and
- a shade tree survey for the city of Beaufort of trees in the historic district. The survey was performed in coordination with the Clemson Extension Service.

In cooperation with the information and education effort, the RC&D forester gave 18 talks, aided with seven forestry demonstrations, wrote 13 newspaper releases, taped nine radio programs, and produced three newsletters. She also assisted with a sawmill improvement study, a sawmill lumber drying study, and the collection of commodity drain data.

Ninety-Six Resource Conservation and Development Project

The Ninety-Six District Resource Conservation and Development (RC&D) Project consists of Abbeville, Edgefield, Greenwood, Laurens,

McCormick and Saluda counties. This project was initiated and sponsored by local citizens, federal, state, and local governments. Industry and others are working together on proposals the local citizens consider necessary to develop a better way of life for all people in the area.

The primary objective of this project is to assist landowners, local units of government, and all other agencies by providing guidance in land use planning, promote multiple use of the forest, show ways to increase production and provide more employment opportunities and to protect the forest from fire & erosion through control measures.

The Ninety-Six RC&D Project was very active this year. Below is a list of projects completed or still being worked on:

A. *Completion and Publication of the "Forest Resource Analysis: Ninety-Six District Resource Conservation and Development Area."*

This analysis shows that the Ninety-Six RC&D area leads the southeast in production with 92 cubic feet per acre per year. The analysis also reveals that a lot of work needs to be done, especially on non-industrial private forest land (NIPF). This group owns approximately 70% of the land and over 80% of the work that needs to be done is on this land.

B. *Promotion of the American Tree Farm System* — Two hundred and twenty letters and response forms were sent to prospective candidates for the Tree Farm System. Fifty-four candidates responded and have been contacted by inspecting foresters, or will be in the near future.

C. *Forestry Field Day* — A forestry field day was held in Edgefield County to give landowners information on all aspects of forest management. Sixty people attended. A barbecue lunch was served.

D. *Piedmont District Forestry Invitational* — On October 11, 1980 the Ninety-Six RC&D and Clemson Forestry Extension Service sponsored a forestry invitational for students in the Piedmont area. The Ninety-Six RC&D supplied each student with a T-shirt. Prizes and ribbons were also given to the winners in each category of competition.

E. *Farm-City Week* — The Ninety-Six RC&D participated in the local observance of Farm-City Week by setting up several displays in one of the local shopping malls. It was estimated that 10,000 people saw the displays during the one-week observance.

F. *Remote Sensing Study* — One of the main on-going projects that is now in full swing is the study of high altitude, infrared, optical bar photography. This study will help to determine just how this photography can be used in forestry. The main emphasis is on inventory. Some of the inventory data that will be gathered is:

1. Forest land by timber type
2. Forest land by size classes

3. Location of critical eroding areas in forest lands
 4. Location of cutover forest lands over the past 3 years
 5. Location and extent of reforested cutover lands
 6. Location of land use changes
 7. Inventory of plantations
 8. Location of prime forest lands, especially around urban areas that are rapidly expanding
 9. Location of wetlands
- G. *Forestry Newsletter* — Work is almost complete on publishing a quarterly newsletter. This letter will be sent to approximately 600 people. The letter will cover all forestry related news and events in the RC&D area.
- H. *Woodland Clinic* — This clinic is being developed to be held annually to enable Vo-Ag and 4-H students to practice skills and knowledge learned in forestry studies. Mensuration, tree identification, selective thinning, wildlife and environmental studies will be stressed. Award and supper will be provided.
- I. *Wood Energy Survey* — In October 1980 a survey of the secondary wood using industry in the RC&D area was made to determine if there was any waste that could be used for energy. A survey form was sent to 19 companies. Nine forms were returned. From these returned forms, it was determined that there is very little wood waste. All companies were doing a good job of using their waste.

Urban Forestry

The first urban forestry project in South Carolina was established in Columbia in 1973 followed by a project in the Greenville-Spartanburg area in 1974. An urban wood utilization project that started in Charleston in 1977 has evolved into an urban forestry project. During 1977-78 fiscal year an urban project was started in Florence. During the 1977-78 fiscal year CFM foresters in Anderson, Conway/Myrtle Beach, and York devoted 25% of their time to determine if an urban forestry program was needed in these areas. The Conway/Myrtle Beach area was the most promising and requests for assistance indicates a great need for a project there. Funds have not been available to establish the Conway/Myrtle Beach urban project.

Urban foresters work with private businesses, planners, governmental agencies, and the general public for the care, protection and wise use of our urban forests.

The following are urban forestry accomplishments for fiscal year 1979-80:

	Columbia	Greenville/ Spartanburg	Charleston	Florence
Assists to Individuals, Businesses, Agencies	421	1,500	161	210
Tree Expert Referrals	35	300	10	17
Woodland Examinations	3	—	26	17
Marking and/or Marketing Assists	—	—	73 cds.	—
News Release/Radio Television	—	8	5	68
Garden/Civic Club Programs & Demonstrations	21	77	31	25

Urban foresters also assisted with special projects.

The Greenville/Spartanburg urban forester conducted an urban wood fiber utilization emphasis resulting in 500,000 board feet of timber and 2,500 cords of pulpwood being used that might otherwise be lost.

The Columbia urban forester served as a participant and advisor to the Columbia Tree Commission. He also conducted a detailed inventory of the timber, soil, and wildlife on the 2,188 acre Harbison State Forest.

The Florence urban forester participated in a Founder's Day display in Johnsonville, a street tree survey in Hartsville, a tree management program in Latta and assisted Florence and Marion to be recognized as a Tree City USA.

The Charleston urban forester participated in several projects such as a seminar on "Urban Tree Care" at Tri-Dent Technical College a tree planting plan for Brown's Island Development, and assisted the town of Summerville in reviewing its tree care program and ordinances.

South Carolina Tree Farm System

The South Carolina Tree Farm Program gives public recognition to private timberland owners who are doing outstanding jobs in managing their forestlands, thereby encouraging others to do likewise. The basic aim of the Tree Farm Program is to place more woodland under good forest management practices to bring continuing benefits to the owners and produce more and better forest products and services.

To become a Tree Farmer a landowner must demonstrate the desire and ability to protect his trees from fire, insects, diseases, and destructive grazing. In addition, he must apply sound cutting practices to improve the growth of the timber stand. Forestry measures designed to insure the growing and harvesting of repeated tree crops must be followed, including measures to assure satisfactory reproduction, either from natural seeding or planting.

Before a woodland may be certified as a Tree Farm, it must be inspected by a qualified forester who submits an inspection record for consideration by the State Tree Farm Committee. When a property is approved as a Tree Farm, the owner is given a certificate and a diamond-shaped green and white sign denoting his membership in the Tree Farm System. It is hoped that his neighbors and others who see the

sign and the good forestry practices will come to better understand forest values and forestry practices.

The South Carolina Tree Farm System is sponsored by the local forest industries through the Southern Forest Institute which is the southern affiliate of the national organization, the American Forest Institute. The S. C. State Commission of Forestry, the Clemson University Extension Service and consulting foresters and woodland owners in South Carolina cooperate and assist with the program. A Tree Farm Committee, made up of representatives from the above mentioned industries and organizations, administers the program.

As of June 30, 1981, there were 992 Tree Farms in the State comprising 2,886,986 acres.

A new program was begun in the state to designate certain interested forest landowners as Pioneer Tree Farmers. For a two year period inspecting foresters would work with them to instigate the forest management practices needed so that they would qualify for certification as a Tree Farmer. If the management goal is not reached in the two year period, the Pioneer Tree Farmer would be either dropped from the program or he would be re-enlisted on an extended time. During the year, two persons began as Pioneer Tree Farmers with a total of 293 acres of woodland.

Incentives Programs

Forest Renewal Program — (FRP) — State

The South Carolina General Assembly passed unanimously the Forest Renewal Act which authorizes a state forest incentives program. The act will assess primary wood-using industries approximately 1.2 million dollars annually to support the program, provided the General Assembly will appropriate \$300,000. The bill was signed by Governor Richard Riley on May 20, 1981.

No funds were appropriated for F.Y. 1981-82.

The objective of the FRP is to assist non-industrial private woodland owners in reforesting their woodlands. This reforestation effort would provide raw material for the wood-using industry. It can play a major roll in reducing the potential for a wood supply shortage projected by the 1978 Forest Survey to occur in South Carolina by 2007.

Forestry Incentives Program — (FIP) — Federal — 1980-81

The objective of the Forestry Incentives Program authorized by Congress in 1973 is to intensify timber production and related multiple use benefits for non-industrial private landowners owning 1,000 acres or less of forest land.

FIP funds allocated to South Carolina for the 1980-81 program year totaled \$862,000. Funds not utilized in the previous year's program were carried over into the current year because of the "no year-end

funding" spelled out in the original act. Cost share funds earned in 1980-81 totaled \$1,687,276.

1980-81 FIP Accomplishments

<u>Practice</u>	<u>No. Referrals</u>	<u>Acres Completed</u>	<u>Cost Share Paid Out</u>
Bare Land Planting	212	5,577*	120,813
Site Preparation & Planting	590	19,534	1,540,638
Timber Stand Improvement	13	526	22,705
Totals	815	25,637	1,684,156

*Includes 2,961 acres of replanting.

FIP Accomplishment Summary

Total funds allocated to South Carolina for FIP since 1973 amount to \$7,116,940. Cost share funds earned through June 30, 1981 totaled \$6,327,069. The outstanding balance of \$789,871 is obligated and is being held by County Agricultural Stabilization and Conservation Service (ASCS) offices until 1980 and 1981 practices are completed. Table 1. summarizes FIP accomplishments by practice since 1973-74.

Agricultural Conservation Program (ACP)

Funds are available through the traditional Agricultural Conservation Program (ACP) for landowners who do not qualify for forest improvement cost-share funds under the present FIP guidelines, or for practices not included in FIP such as prescribed burning and firebreak construction.

1980-81 ACP Accomplishments

<u>Practice</u>	<u>No. Referrals</u>	<u>Acres Completed</u>	<u>M. Linear Feet</u>	<u>Cost Share Paid Out</u>
Bare Land Planting	82	1,208*	—	23,170
Site Preparation & Planting	136	2,981	—	215,890
Timber Stand Improvement	7	77	—	2,993
Prescribed Burning	43	6,944	—	13,126
Firebreak Construction	42	—	443	4,959
TOTALS	310	11,210	443	260,138

*Includes 416 acres of replanting.

FIP and ACP cost-share funds provide for payments up to 75 percent of the cost to carry out forest improvement practices. The landowner pays the remainder.

The FIP and ACP programs are administered by the Agricultural Stabilization and Conservation Service (ASCS). The South Carolina State Commission of Forestry is responsible for technical advice and assistance to landowners who apply for cost-share funds.

Table 1. Summary FIP Accomplishments

Fiscal Year	Bare Land Planting			Site Preparation And Planting			Timber Stand Improvement			Prescribed Burning			Firebreak Construction				Cost Share Paid Out
	No. Cases	Acres	Dollars	No. Cases	Acres	Dollars	No. Cases	Acres	Dollars	No. Cases	Acres	Dollars	No. Cases	Feet	Dollars	Allocation	
1973-74				MONEY NOT RECEIVED UNTIL APRIL 1, 1974. NO ACCOMPLISHMENTS COMPLETED												\$ 468,000	\$ 0
1974-75	82	1,848	30,397	212	5,941	335,862	12	291	3,480	10	887	666	18	186,225	984	629,000	371,689
1975-76	81	1,668	37,056	254	6,378	376,447	3	80	960	24	1,670	1,252	23	254,000	712	939,000	416,000
1976-77	105	2,354	46,657	305	8,786	537,439	5	118	1,416	9	682	512	12	98,675	238	1,087,940	586,262
1977-78	147	3,782	74,315	443	14,797	888,335	6	179	3,912	2	320	240	1	5,000	10	1,116,000	966,812
1978-79	123	3,338	65,002	422	15,592	1,095,012	2	55	1,650							1,040,000	1,095,379
1979-80	130	3,089	61,932	732	16,195	1,136,644	9	129	5,068	Not Covered Under Program						1,025,000	1,203,651
1980-81	212	5,577	123,933	590	19,534	1,540,638	13	526	22,705							862,000	1,687,276
TOTALS	880	21,656	439,292	2,958	87,223	5,910,377	50	1,378	39,191	45	3,559	2,670	54	543,900	1,944	7,166,940	6,327,069

Table 2. Summary By Districts 1980-81

Forestry Incentives Program
Accomplishments Completed

	Bare Land Plant*			Site Prep & Plant			TSI			Prescribed Burn			Firebreaks		
District	No.	Acres	Dollars	No.	Acres	Dollars	No.	Acres	Dollars	No.	Acres	Dollars	No.	Feet	Dollars
Camden	13	344	8,742	35	1,560	115,887	—	—	—						
Florence	6	105	3,342	41	1,239	98,422	1	40	1,800						
Kingstree	5	157	3,510	30	1,808	163,619	—	—	—						
Newberry	88	1,686	40,503	224	4,882	423,299	2	200	9,000						
Orangeburg	70	2,436	51,578	107	4,618	344,940	5	122	5,826						
Spartanburg	5	284	6,816	39	1,050	49,934	2	21	630						
Walterboro	25	565	11,442	114	4,377	344,527	3	143	5,449						
Totals	212	5,577	125,933	590	19,534	1,540,628	13	526	22,705						

*Includes 2,961 Acres replanting.

Agriculture Conservation Program
Accomplishments Completed

	Bare Land Plant* *			Site Prep & Plant			TSI			Prescribed Burn			Firebreaks		
District	No.	Acres	Dollars	No.	Acres	Dollars	No.	Acres	Dollars	No.	Acres	Dollars	No.	M. Feet	Dollars
Camden	17	350	5,519	27	490	31,423	2	44	1,628	1	25	38			
Florence	13	175	3,242	12	214	13,420	5	33	1,365	22	3,665	6,893	19	198.3	2,578
Kingstree	5	74	2,118	36	924	76,502				3	536	1,072	2	37.0	148
Newberry	12	128	2,424	15	420	34,562									
Orangeburg	22	367	7,933	27	586	36,616				1	35	56			
Spartanburg	4	45	1,080	5	55	5,225									
Walterboro	9	69	854	14	292	18,142					3,219	6,139	23	244.4	2,381
Totals	82	1,208	23,170	136	2,981	215,890	7	77	2,993	43	7,480	14,153	44	479.7	5,107

*Includes 416 Acres replanting.

Young Adult Conservation Corps (YACC)

The Young Adult Conservation Corps (YACC) was funded under Title VIII of the Comprehensive Employment and Training Act (CETA) and is an agreement between the Secretary of Labor and the Secretaries of Agriculture and Interior.

The purpose of YACC is to provide employment and other benefits to young men and women, ages 16-23, who would not otherwise be currently productively employed. They engage in useful conservation work and aid in completing other projects of a public nature on Federal and non-Federal public lands and waters.

The Forestry Commission's contract, starting with the Federal F.Y. October 1, was for 17 YACC members plus one supervisor and one clerk. A memorandum from the Department of Labor, Washington, D. C., received in February stated that the program would not be funded in 1982. Some of the 1981 funds were deferred until 1982 so the program could be properly phased out. This meant the work week of the 17 members had to be reduced to 23 hours per week.

Projects for the year were at Coastal Nursery, St. George; Creech Seed Orchard, Wedgefield; and Piedmont Nursery, Salem. Supervisors at these facilities, plus a staff forester in the central office contributed their time to the operation of the program without benefit of federal funds.

The corp members assist with routine work on the state forest and nursery properties in addition to performing jobs requiring funds where state funds were not available.

Activities include: construction, finishing concrete, painting and repair work of buildings, windrow removal, timber stand improvement, construction of fences, planting seedlings and seed orchard grafts, grafting rootstock, harvesting genetically improved pine seed, construction of rooting shed, lifting and packing seedlings, beautification projects and other work relating to forestry.

Besides providing meaningful employment, an effort is made to train the corp members in skills that will make them more competitive in the job market.

The YACC program is a good one that produces beneficial effects, not only for the corps members, but for South Carolina's landowners interested in planting trees.

The YACC rooting shed, used for soft tissue grafting and rooting cuttings of Leyland cypress for South Carolina's Christmas tree industry, burned down on Friday, the 13th of February, 1981. The shed is in the process of being rebuilt.

The following table shows, by agencies the number of woodland acres for which long-range forest management plans have been prepared since the project began.

Clemson University Agricultural Experiment Station . . .	528
Department of Corrections	2,621
Department of General Services	389
John de la Howe School	1,056
Department of Mental Health	1,073
Department of Mental Retardation	1,142
S. C. State College	198
Dept. of Parks, Recreation, & Tourism	39,428
Wildlife and Marine Resources	13,566
Department of Youth Services	319
	<hr/> 60,320

State Forests

There are four state forests operated by the Forestry Commission:

Cassatt State Forest	462 acres
Harbison State Forest	2,188 acres
Manchester State Forest	28,830 acres
Sand Hills State Forest	92,000 acres
TOTAL	<hr/> 123,480 acres

Prior to acquisition by the state most of the land included in the state forests had been heavily cut over and generally misused. The primary effort since acquisition by the state have been directed to building up the growing stock in existing forest stands, planting submarginal old fields to desirable species of forest trees, developing adequate multiple use and wildlife management programs, and protecting endangered species.

It is the objective of the S. C. State Commission of Forestry to practice on forestlands under its jurisdiction and principles of high quality multiple use and sustained yield timber management, and to promote practices to protect and enhance environmental quality in the management of all forest ownerships.

Multiple use denotes managing all of the forest's renewable resources so that they are utilized in combinations that will best meet the needs of the environment and the people of South Carolina.

Multiple use includes timber production, grazing, fish and wildlife, air, water, soil, recreation, aesthetics, scenic beauty, environmental quality, wilderness and natural areas, scientific research and ecological considerations.

In most instances forestland is not fully serving the people if it is used exclusively for a purpose which could also be achieved in combination with several other uses. However, multiple use does not imply that all uses must coexist at the same time and place on a given acre of forestland. Because of specific circumstances on a given acre one use might be dominant while other uses are subordinate.

The practice of multiple use therefore usually requires compromise. The Commission believes that such compromise and limitations are acceptable and desirable when there is greater total benefit.

Silvicultural practices are carried out on small blocks interspersed throughout a compartment. This even-age management produces compartments representing all age groups of timber, i.e., newly cleared areas favored by doves, quail, and deer; young dense stands for cover and concealment; and older, more open stands for quail, deer, and the endangered red-cockaded woodpecker. Den trees for squirrels are reserved. Game census reports indicate this method of management produces close to optimum numbers of game species and timber production with cost of management not adversely affected.

Demonstrations and Meetings

Several large group meetings were held at the state forests to show some of the results of research and experimental work. In addition a large number of individuals and small groups visited the areas to observe methods and results of scrub oak reclamation to productive forestland and other ongoing forestry related practices and applications.

Payment to Counties

Twenty-five percent of the gross receipts of all state forest operations is paid to the counties in lieu of taxes. This year's payments to counties were as follows:

Chesterfield (Sand Hills State Forest)	\$68,671.07
Sumter (Manchester State Forest)	32,373.83
Darlington (Sand Hills State Forest)	943.42

In the past 23 years since the passage of this Act, the Forestry Commission has paid a total of \$2,060,830.28 to counties where the state forestlands are located as follows:

Chesterfield	\$1,320,560.94
Sumter	649,331.75
Richland	49,605.16
Kershaw	8,349.41
Darlington	32,983.02

Research

Most of the Commission's research efforts were through cooperative studies with either Clemson University or the U. S. Forest Service, Southeastern Forest Experiment Station.

Cassatt State Forest

Cassatt State Forest, containing 462 acres, is located about two and one-half miles north of Cassatt, S. C. It was deeded to the state by the late J. R. West on May 28, 1935. A CCC Camp was located there. Cassatt Tower and a dwelling for the towerman were erected by the CCC and continue to be used for fire detection.

Sand Hills State Forest personnel have established and maintained a system of boundary firebreaks. Breaks have also been plowed around plantations and along the public road which crosses this property and all boundary lines have been permanently marked.

Harbison State Forest

Harbison State Forest, containing 2,188 acres, is located in Richland County. The Richland County fire control organization is responsible for fire protection and is assisted by a caretaker. No fires burned on the forest during the year. No timber sales were made in 1980-81.

Most of the Harbison area is well-stocked and is in good growing condition. During the 29 years the state has owned this property, timber receipts have paid for the land purchase plus interest and all operating costs and have returned a substantial amount to the state and county treasuries. A comprehensive land use study was initiated during the year which will result in a Harbison State Forest Master Plan of Management Objectives.

Manchester State Forest

Manchester State Forest, located south of Wedgefield in Sumter County, contains 28,830 acres. From 1939 to 1955 this land was leased to the S. C. State Commission of Forestry from the federal government. The state received fee title to this property on June 28, 1955. Most of the old fields except those being farmed have been planted to trees.

Four hundred acres of land were rented for agricultural purposes during the year. Some of the tenants renting this land work part-time on the forest.

Game Management:

An intensified program of game management has been introduced in cooperation with Sumter County Game & Fish Association. In addition to utilizing "waste acres" under power lines, permanent wildlife fields and food patches have been established. This fiscal year receipts from hunting and fishing permits totaled \$5,657.80.

Of the 4,743 permits sold, 1,137 were for deer hunting. Forty-two deer were killed. During the year 938 dove permits were sold, most of those for the first three hunts. Quail hunting accounted for 366 permits. Success was variable depending on knowledge of the area and ability of

the dogs. Combination rabbit and squirrel permits totaled 628. A total of 1,673 fishing permits were sold.

Recreation other than hunting and fishing includes hiking, berry picking, sightseeing, motorcycling, horseback riding and field trials. During the fall of the year many ride through the forest to view the colorful foliage.

Tree Planting:

One hundred fifty acres were planted this year. Longleaf pine was planted on 138 acres and 10 acres were planted with improved loblolly pine. Two acres were planted to redcedar.

Manchester Receipts for 1980-81 Fiscal Year:

Sawtimber — 339,331 bd. ft.	\$ 46,901.00
Pulpwood — 1,513.01 cords	24,185.90
Fuelwood permits	3,913.50
Rentals, leases, and miscellaneous	48,329.96
Hunting and Fishing permits	5,657.80
TOTAL	\$128,988.16

Silvicultural Practices:

One hundred acres were site prepared and 108 acres were plowed for seedbed preparation. The total area cleared of scrub oak and planted to pine on the forest is 10,942 acres. Thirty acres of pine were released from scrub oak competition and 800 acres prescribed burned.

Forest Protection:

Eight forest fires occurred during 1980-81, burning a total of 29.3 acres. Monthly checks were made for insect and disease damage. Research in cooperation with the Southeastern Forest Experiment Station is being continued on insects and disease prevention.

In addition to the formal research projects, demonstration areas were used by Clemson students, 4-H clubs and other interested groups.

Shaw Air Force Base:

The U. S. Air Force leases 7,687 acres of Manchester State Forest for an aerial gunnery range to train pilots from various Air Force bases in the southeastern United States. The South Carolina Air National Guard has access to the range and uses it frequently.

Sand Hills State Forest

Sand Hills State Forest, located in Chesterfield and Darlington Counties, consists of 92,000 acres. Half of the area is administered by the U. S. Fish and Wildlife Service as a wildlife refuge. The State Commission of Forestry handles fire protection and forest management activities

on the refuge and manages the other half as a multiple use forest. The area is leased from the federal government on a 95-year lease. The area became self-supporting in 1966. All revenue over operating expenses is expended on the area for further improvements and operations.

Before the area was acquired by the government, it was heavily cut over and badly burned. As a result of the abuse major activities since acquisition have consisted of tree planting, fire protection and other practices aimed at building up the productivity of the land and increasing timber volume and wildlife habitat. Through the use of forest inventory information the allowable cut and distribution of the various age classes of timber is regulated.

Timber harvesting this fiscal year has been to release natural seedlings in understocked stands; harvest cut understocked stands for further site preparation and plantings; thinnings, and improvement cuts.

A revised forest management plan is now in use which includes multiple resource management concepts. It is planned for each compartment to contain stands of various age groups and species composition plus openings of farmland and wildlife fields. Quality mast-producing hardwoods are maintained on appropriate sites. Important consideration is given the red-cockaded woodpecker in all management planning and according to the mandates of the Endangered Species Act of 1973.

Research is conducted on the forest by the Southeastern Forest Experiment Station and state universities. Demonstration areas are maintained to instruct interested individuals and groups such as 4-H, Boy Scouts, Tree Farmers and foresters.

Tree Planting:

Tree planting consisted of areas clearcut and site prepared. A total of 302 acres were planted with the following species:

Longleaf	210,000
Improved Loblolly	40,000
TOTAL	250,000

Sand Hills Receipts for 1980-81 Fiscal Year:

Timber Sales	\$276,046.70
Fuelwood permits	6,923.00
Hunting and Fishing Permits	6,222.00
Real property rentals (farmland)	14,255.43
Miscellaneous (stumps, pine straw, etc.)	11,093.33
TOTAL	\$314,540.46

Silvicultural Practices:

During the 1980-81 fiscal year, 2,713 acres were prescribed burned. One hundred sixty-eight (168) acres were burned and disked for planting.

Forest Protection:

All suitable boundary lines were disked and breaks disked along all major roads and railroads for fire protection. The prescribed burning listed above gives good protection due to the scattered pattern. Thirty wildfires occurred, burning a total of 159.4 acres. Forest insects and diseases caused no problems during the year.

Recreation:

The Sugar Loaf Mountain recreation area continued to receive heavy use. Besides the naturally formed Sugar Loaf Mountain, which is about 150 feet high, there are five picnic shelters, a lake, fireplaces, a flowing well, parking areas, and latrines. Scout troops and other organized groups use this area and facilities for overnight camping. Many auto touring visitors drive through this forest, especially when the oak leaves color in the fall and to view the rhododendron near Sugar Loaf Mountain in the spring. A nature trail is available for hiking which winds through a branch and an undisturbed wooded area showing many species of mature trees. Increased use by horse groups was evident this year. Several hitching posts were erected.

Fish and Wildlife:

Hunting and fishing are conducted in season by permit on the forest area. Close cooperation by the Commission of Forestry, the State Wildlife Resources Commission and the U. S. Fish and Wildlife Service prevails. Deer, dove and quail food patches are planted and maintained by the Commission of Forestry.

There are 13 ponds available for fishing on the forest. These are maintained through fertilization and weed control. Fishing permits totaled 1,937 daily and 455 season this year.

Dove, quail, squirrel, deer and rabbit hunting were permitted on the state forest portion of the Sand Hills State Forest. Permits sales totaled 244 for dove, 136 for squirrel, 578 daily and 5 season for quail, 105 daily and 124 two-week season for deer, and 19 daily for rabbit.

*Other State Land Forest Management Program
1980-81 Forest Products Sales*

<i>Agency & Sale No.</i>	<i>Purpose of Cut</i>	<i>Acres</i>	<i>Bd. Ft.</i>	<i>Cords</i>	<i>Sale Price</i>
Clemson Experiment Stations					
Sandhill 3-1	Pulpwood Thinning	38		303	\$ 7,189.56
Sandhill 3-2	Pulpwood Thinning	15		61	866.45
Sandhill 3-3	Overstory Release	46	145,245	11	21,237.00
Division of General Services					
Airport Tract 3-1	Pulpwood Thinning	59		250	4,812.50
John de la Howe School					
de la Howe 3-M-13	Bug & Dead Tree Salvage			102	819.28
Division of State Parks					
Cheraw 3-M-25	Dead Tree Salvage and Clear Construction Area			226	1,176.30
Croft 3-M-18	Bug Salvage			789	3,944.40
Greenwood 3-M-6	Bug Salvage and Power Line R-O-W			331	3,315.00
Kings Mountain 3-M-7	Bug Salvage		78,814	7,762	96,865.29
Lee 3-M-4	Dead Tree Salvage			6	30.00
Paris Mountain 3-M-11	Tornado Salvage		78,493	177	2,092.88
Redcliff 3-M-1	Bug Salvage			20	101.00
Table Rock 3-M-5	Bug Salvage			43	214.60
Wildlife & Marine Resources					
Webb Center 3-11	Improvement and Regeneration Cut	151	559,846	192	91,740.00
			862,398	10,273	234,404.26

Other State Lands Forest Management Program

During the fiscal year 1980-81 seven agencies requested and received forestry assistance. A management plan was prepared on one tract covering 1,795 woodland acres. Forest products sales totaled 862,398 board feet of sawtimber and 10,273 cords of pulpwood for an income of \$234,404.26. Fifty acres were site prepared for tree planting and seventy acres were planted to tree seedlings. Approximately three hundred acres are prescribe burned.

The following is a breakdown by agencies of work accomplished during 1980-81:

Clemson University Agricultural Experiment Stations — Sale of 145,245 board feet of sawtimber and 375 cords of pulpwood for an income of \$29,293.01.

Dept. of Corrections — A management plan was prepared on 1,795 acres of woodland and 20 acres were planted to tree seedlings.

Division of General Services — Sale of 250 cords of pulpwood for an income of \$4,812.50.

John de la Howe School — Sale of 102 cords of pulpwood for an income of \$819.28. Seventy-eight acres were prescribe burned.

Dept. of Mental Health — Meeting held with department personnel to survey present forest conditions and plan future forestry management work.

Dept. of Mental Retardation — Meeting held with department personnel to survey present forest conditions and plan future forestry management work.

Division of State Parks — Sale of 157,307 board feet of sawtimber and 9,354 cords of pulpwood for an income of \$107,739.47. Two hundred and twenty five acres were prescribe burned.

Wildlife and Marine Resources — Sale of 559,846 board feet of sawtimber and 192 cords of pulpwood for an income of \$91,740.00. Fifty acres were site prepared and planted to tree seedlings.

Nurseries

The Forestry Commission continued to operate four forest tree nurseries for the production and distribution of tree seedlings to landowners in South Carolina. The nurseries distributed 53,512,622 seedlings for planting during the 1980-81 planting season. An additional 37,462,154 seedlings were either produced in state by industry nurseries or brought into the state by others. A grand total of 86,419,513 seedlings were planted in South Carolina. The balance of 4,555,263 were planted out of state.

The cost of seedlings f.o.b. varied from \$11.00 to \$30.00 per thousand depending on species. A charge of \$2.00 per thousand was made for seedlings delivered to county seats by nursery trucks.

The demand for Commission grown seedlings was strong throughout the planting season, a result of the excellent planting weather last fall and winter. This allowed landowners to get their land prepared early. We were not able to meet all demands for improved coastal loblolly seedlings and late orders of piedmont loblolly, but were able to supply other varieties or species requested. Seedling sales are expected to increase for the 1981-82 planting season.

On February 27, the new packing shed, cold storage and office complex was completed at Ridge Nursery. Governor Riley was the main speaker at the dedication. The name of this nursery was changed to the A. Brandon Taylor, Jr. Forest Tree Nursery to honor Mr. Taylor, past Chairman and long-time member of the Forestry Commission.

Distribution of Seedlings

Of the 53,512,622 forest tree seedlings produced in state forest tree nurseries during the year, 4,555,263 seedlings were sold out of state.

Nursery production by species was as follows:

Improved Coastal Loblolly	11,665,450
Regular Coastal Loblolly	13,305,977
Improved Piedmont Loblolly	20,382,100
Regular Piedmont Loblolly	5,117,500
Improved Slash	312,000
Longleaf	1,332,850

White Pine	562,500
Virginia Pine	529,350
Redcedar	135,330
Yellow Poplar	62,025
Sweetgum	23,000
Scotch	16,900
Black Walnut	13,750
Baldcypress	18,500
Misc.	35,390
TOTAL	53,512,622

Tables in this report record the number of seedlings distributed by counties and class ownership. Another table shows the total acreage planted and the number of acres in need of planting by counties.

The Cumulative Tree Planting Table records the number of seedlings distributed in South Carolina by years including those shipped for planting out of state.

S. C. STATE COMMISSION OF FORESTRY
TREE SEEDLING DISTRIBUTION
BY
LANDOWNER CLASSIFICATION
1980-81

A. *State Nursery Source Seedlings Planted in the State:*

<i>Land Ownership</i>	<i>Percent of Total</i>	<i>No. Trees Planted</i>
Farmers	16.6	8,134,500
Other Individuals	26.4	12,958,905
Associations & Clubs	1.0	490,000
Lumber Companies	2.0	1,044,789
Pulp & Paper Co.	25.0	12,118,750
Other Industries	23.0	11,183,925
Schools .....	.4	212,500
State Forests .....	.7	363,240
Other State Lands .....	.3	166,000
City, Town, Government .....	.1	85,000
Federal Government	3.0	1,487,000
Watersheds .....	.1	22,000
Christmas Tree Growers	1.4	690,750
TOTALS	100.0	48,957,359

B. *Other Source Seedlings Planted in the State:*

Champion International	5,567,304
Hiawasee Land Company	6,516,000
Westvaco	16,156,000
Union Camp	4,438,100
Continental Forest Industries	1,219,000
N. C. Forest Service	1,591,800
Brunswick	245,000
Federal Paper Board	1,243,000
Georgia Pacific Corp.	409,950
U. S. Forest Service	76,000
TOTAL	37,462,154
TOTAL SEEDLINGS PLANTED IN THE STATE ...	86,419,513

C. *State Nursery Source Seedlings Shipped Out of State:* 4,555,263

D. *Direct Seeded:*

Lightsey Brothers 200 acres

CUMULATIVE TREE PLANTING RECORD AND PLANTING NEEDS — ALL SOURCES

<i>County</i>	<i>Seedlings Planted 1929-80</i>	<i>Seedlings Planted 1980-81</i>	<i>Grand Total Planted to date 1929-80</i>	<i>Acres Planted 1929 thru 6/30/81</i>	<i>Acres in need of Planting as 6/30/81</i>
Abbeville	37,409,887	1,255,730	38,665,617	42,612	16,989
Aiken	165,319,093	3,474,150	168,793,243	175,456	181,911
Allendale	58,653,895	1,680,998	60,334,893	63,900	26,655
Anderson	36,201,292	845,000	37,046,292	38,670	45,791
Bamberg	31,723,034	648,475	32,371,509	33,967	27,271
Barnwell	83,957,656	2,226,050	86,183,706	90,060	70,794
Beaufort	17,133,445	912,600	18,046,045	19,887	65,315
Berkeley	72,248,366	2,468,325	74,716,691	84,284	51,900
Calhoun	20,356,495	526,075	20,882,570	22,572	33,970
Charleston	20,184,750	2,165,075	22,349,825	26,790	40,035
Cherokee	21,059,079	212,000	21,271,079	22,618	41,880
Chester	49,279,489	2,964,444	52,239,933	80,886	24,443
Chesterfield	101,378,665	2,371,500	103,750,165	109,947	147,046
Clarendon	35,188,810	2,047,055	37,235,865	41,174	10,268
Colleton	65,709,126	4,473,435	70,182,561	90,196	53,258
Darlington	23,444,945	1,265,500	24,710,445	27,650	45,994
Dillon	14,811,390	827,500	15,638,890	17,318	17,701
Dorchester	40,030,731	2,776,090	42,806,821	47,323	35,002
Edgefield	39,062,718	2,383,140	41,445,858	46,925	31,429
Fairfield	51,374,091	3,650,004	55,024,095	60,676	37,523
Florence	15,763,131	1,450,500	17,213,631	19,932	41,945
Georgetown	73,748,100	6,268,500	80,016,600	89,887	25,975
Greenville	22,043,154	266,500	22,309,654	23,470	50,746
Greenwood	50,300,611	2,300,740	52,601,351	50,079	16,731
Hampton	61,248,779	3,879,000	65,127,779	72,126	15,527
Horry	46,208,785	1,613,700	47,822,485	53,142	112,691
Jasper	55,799,130	2,125,100	57,924,230	63,838	42,010
Kershaw	138,884,617	2,984,600	141,869,217	150,608	111,695
Lancaster	44,379,724	1,810,448	46,190,172	51,206	18,850
Laurens	61,971,295	1,906,200	63,877,495	69,486	23,019
Lee	18,110,160	421,900	18,532,060	19,858	21,563
Lexington	45,455,322	797,000	46,252,322	48,358	112,286
Marion	20,337,455	762,500	21,099,955	23,350	43,714
Marlboro	36,655,058	1,283,500	37,938,558	41,801	36,989
McCormick	25,031,375	1,692,190	26,723,565	30,747	21,398
Newberry	45,463,072	2,574,700	48,037,772	54,520	33,882
Oconee	25,353,873	319,000	25,672,873	27,345	90,100
Orangeburg	71,379,701	3,524,041	74,903,742	81,980	75,977
Pickens	19,947,125	558,850	20,505,975	21,736	36,265
Richland	48,351,165	796,433	49,147,590	52,754	98,877
Saluda	21,895,951	1,520,900	23,416,851	27,285	16,163
Spartanburg	44,501,446	665,100	45,166,546	47,528	46,867
Sumter	50,710,702	1,331,965	52,042,667	54,824	40,775
Union	47,814,878	1,794,000	49,608,878	54,882	41,472
Williamsburg	44,809,342	3,548,000	48,357,342	56,372	51,506
York	42,209,496	1,048,500	43,257,996	45,951	43,160
Total	2,162,900,404	86,417,013	2,249,313,909	2,475,976	2,275,358
Out-of-State	58,828,178	4,555,263	63,383,441	—	—
Grand Total	2,221,728,582	90,972,276	2,312,697,350	2,475,976	2,275,358

**SOUTH CAROLINA STATE COMMISSION OF FORESTRY
SEEDLING DISTRIBUTION FROM STATE NURSERIES AND
OTHER SOURCE BY COUNTIES, SPECIES AND AMOUNTS
1980-81**

<i>County</i>	<i>Improved Coastal</i>	<i>Regular Coastal</i>	<i>Improved Piedmont Lob.</i>	<i>Regular Piedmont Lob.</i>	<i>Slash</i>	<i>Longleaf</i>	<i>White Pine</i>
Abbeville			1,236,230			10,500	3,500
Aiken	753,500	1,070,500	1,056,000	435,500	2,500	103,350	9,500
Allendale	510,000	769,498	220,000	95,000		2,500	1,500
Anderson	2,000		729,500	15,000	3,000	1,500	44,500
Barnberg	384,500	148,775					600
Barnwell	336,500	567,850	891,900	50,000		296,000	3,500
Beaufort	51,000	172,000			66,000		
Berkeley	1,205,000	1,232,325			27,000		
Calhoun	213,500	100,075	191,500		2,000		5,500
Charleston	1,058,000	1,084,500	500		500	1,500	500
Cherokee			164,500	39,000			6,500
Chester		46,000	2,266,444	640,500			2,000
Chesterfield	25,000	254,000	1,555,000	192,500		332,000	6,500
Clarendon	588,000	1,439,025	1,500		1,500		4,000
Colleton	361,500	3,367,000	500		255,000	1,000	3,960
Darlington	286,000	665,000	96,000	173,000	7,500	13,500	11,000
Dillon	594,500	208,000			1,500		10,500
Dorchester	827,500	1,906,850		12,000	21,000		2,040
Edgefield	117,000	500	2,209,140	49,000	1,000		5,000
Fairfield			2,724,204	892,000		33,000	1,300
Florence	1,015,500	418,000	2,000		500	500	3,000
Georgetown	3,545,500	1,716,500	980,000		500	10,500	1,000
Greenville			173,000	5,500	1,000	500	45,000
Greenwood	89,000		2,201,740				3,500
Hampton	1,051,000	1,647,500	88,000	579,500	100,000	50,500	1,000
Horry	781,500	770,200			1,500	50,500	1,500
Jasper	202,000	866,750		50,000	96,000	1,000	1,050
Kershaw	7,000		2,322,950	509,000	4,000	46,500	22,050
Lancaster		94,000	1,456,948	240,000		1,500	5,000
Laurens			1,808,200	39,000			19,000
Lee	196,500	193,500	5,500	6,000	500	500	6,500
Lexington	20,000	21,500	357,400	109,500	5,500	211,500	15,500
Marion	290,000	67,000			3,500		13,000

**SOUTH CAROLINA STATE COMMISSION OF FORESTRY
SEEDLING DISTRIBUTION FROM STATE NURSERIES AND
OTHER SOURCE BY COUNTIES, SPECIES AND AMOUNTS
1980-81 — Continued**

<i>County</i>	<i>Improved Coastal</i>	<i>Regular Coastal</i>	<i>Improved Piedmont Lob.</i>	<i>Regular Piedmont Lob.</i>	<i>Slash</i>	<i>Longleaf</i>	<i>White Pine</i>
Marlboro	245,500	355,500	542,000		500	107,000	17,500
McCormick	295,000		1,392,190				4,000
Newberry			2,548,700	500			10,500
Oconee	500		241,500	27,500		500	29,500
Orangeburg	1,453,000	1,260,441	452,500	216,000	68,000	7,000	19,000
Pickens			359,850	20,500			124,000
Richland	71,000	62,000	492,908	115,000	1,000	1,000	16,500
Saluda	113,000		1,252,400	112,000			13,000
Spartanburg	122,000	500	389,500	78,000		2,000	41,500
Sumter	417,950	567,875	176,500	59,000		72,000	9,000
Union		61,000	1,285,500	442,000			2,500
Williamsburg	1,550,500	1,892,500	2,000	92,000		500	2,500
York			845,000	132,500		500	14,000
Sub-Totals	18,779,950	23,083,664	32,719,204	5,427,000	671,000	1,358,850	562,500
Out-of-State	170,000	432,263	2,995,000	850,000	100,000	7,000	
GRAND TOTALS	18,949,950	23,515,927	35,714,204	6,277,000	771,000	1,365,850	562,500

**SOUTH CAROLINA STATE COMMISSION OF FORESTRY
SEEDLING DISTRIBUTION FROM STATE NURSERIES AND
OTHER SOURCE BY COUNTIES, SPECIES AND AMOUNTS
1980-81**

<i>County</i>	<i>Virginia Pine</i>	<i>Redcedar</i>	<i>Yellow Poplar</i>	<i>Sweetgum</i>	<i>Baldcypress</i>	<i>B. Walnut</i>	<i>Scotch</i>	<i>Misc.</i>	<i>Totals</i>
Abbeville	2,500	500	1,500			1,000			1,255,730
Aiken	21,000	2,500	500		1,000			18,300	3,474,150
Allendale	2,000				500			80,000	1,680,998
Anderson	34,000	2,000	7,500	3,000		500	2,500		845,000
Bamberg	3,500	1,500						109,600	648,475
Barnwell	3,500	500	500	500				75,300	2,226,050
Beaufort	14,000	1,500			2,000	500		605,600	912,600
Berkeley	500	2,500			1,000				2,468,325
Calhoun	7,500	3,500				2,000	500		526,075
Charleston	13,500	2,075	2,000	500	1,000		500		2,165,075
Cherokee	500	1,000					500		212,000
Chester	6,500	1,500	500				1,000		2,964,444
Chesterfield	3,000	3,500							2,371,500
Clarendon	8,500	3,530		500	500				2,047,055
Colleton	6,500	1,675	500	500	500	750	250	473,800	4,473,435
Darlington	6,500	6,000	500	500					1,265,500
Dillon	500	12,000	500						827,500
Dorchester	4,000	2,200	500						2,776,090
Edgefield	1,500								2,383,140
Fairfield	1,000		500						3,652,004
Florence	2,000	5,500	3,000			500			1,450,500
Georgetown	10,000	1,000	500		3,000				6,268,500
Greenville	33,000	2,500	2,500	500	1,000	500	1,500		266,500
Greenwood	4,000	1,500	500				500		2,300,740
Hampton	1,000	1,500	2,000					357,000	3,879,000
Horry	4,500	3,000	1,000						1,613,700
Jasper		1,000						907,300	2,125,100
Kershaw	13,500	1,600	1,000						2,984,600
Lancaster	12,500		500						1,810,448
Laurens	33,000	2,500	3,000	500	1,000				1,906,200
Lee	11,500	500	500						421,500
Lexington	34,500	13,500	5,000	1,000	1,000	1,000	1,000		797,900

**SOUTH CAROLINA STATE COMMISSION OF FORESTRY
SEEDLING DISTRIBUTION FROM STATE NURSERIES AND
OTHER SOURCE BY COUNTIES, SPECIES AND AMOUNTS
1980-81 — Continued**

<i>County</i>	<i>Virginia Pine</i>	<i>Redcedar</i>	<i>Yellow Poplar</i>	<i>Sweetgum</i>	<i>Baldcypress</i>	<i>B. Walnut</i>	<i>Scotch</i>	<i>Misc.</i>	<i>Totals</i>
Marion	8,000	1,000	1,000		1,000		2,000	376,000	762,500
Marlboro		15,000			500				1,283,500
McCormick			500	500					1,692,190
Newberry	12,500	1,000	500	500		500			2,574,700
Oconee	14,000	1,500	1,500	500		2,000			319,000
Orangeburg	24,500	7,500	7,000	8,000	500	500		100	3,524,041
Pickens	26,000	6,500	3,000	2,000		1,500		15,500	558,850
Richland	24,000	6,000	1,525	1,500	500	1,000	2,500		796,433
Saluda	24,000	2,000	2,000			500	2,000		1,520,900
Spartanburg	18,550	5,050	5,000	2,000	500	500			665,100
Sumter	16,800	4,700	2,500		2,500		2,150	990	1,331,965
Union	1,500		1,000			500			1,794,000
Williamsburg	6,000	1,000	500		500				3,548,000
York	53,500	2,000	500	500					1,048,500
Sub-Totals	529,350	135,330	61,025	23,000	18,500	13,750	16,900	3,019,490	86,419,513
Out-of-State			1,000						4,555,263
GRAND TOTALS	529,350	135,330	62,025	23,000	18,500	13,750	16,900	3,019,490	90,974,776

Miscellaneous Species

Dogwood	3,665
Crepe Myrtle	12,800
Sand Pine	8,750
Texas Loblolly	9,550
Louisiana Lob.	2,984,100
Deodara Cedar	625
TOTAL	3,019,490

<i>Year</i>	<i>Total Distributed (State Nurseries)</i>	<i>Total Distributed (Inc. Other Sources)</i>
1928-29	142,000	142,000
1929-30	148,000	148,000
1930-31	986,000	986,000
1931-32	976,000	976,000
1932-33	996,000	996,000
1933-34	1,031,000	1,031,000
1934-35	7,529,000	7,529,000
1935-36	23,000,000	23,000,000
1936-37	22,000,000	22,000,000
1937-38	11,192,000	11,192,000
1938-39	10,854,000	10,854,000
1939-40	12,244,000	12,244,000
1940-41	21,165,423	21,165,423
1941-42	10,275,037	10,275,037
1942-43	4,742,010	4,742,010
1943-44	5,662,608	5,662,608
1944-45	1,926,840	1,926,840
1945-46	6,402,255	6,402,255
1946-47	1,962,600	1,962,600
1947-48	11,356,990	11,356,990
1948-49	30,338,775	30,338,775
1949-50	29,501,955	29,501,955
1950-51	20,615,315	20,615,315
1951-52	16,619,000	16,619,000
1952-53	22,035,850	32,246,298
1953-54	36,210,100	42,852,314
1954-55	35,373,025	45,182,255
1955-56	34,413,550	42,931,755
1956-57	55,753,600	69,658,736
1957-58	60,846,200	93,369,084
1958-59	123,985,000	166,351,000
1959-60	147,146,365	187,516,418
1960-61	145,609,075	158,330,575
1961-62	71,892,420	83,844,470
1962-63	56,191,241	64,201,541
1963-64	51,445,597	62,423,597
1964-65	49,009,893	60,683,493
1965-66	42,310,685	56,529,185
1966-67	48,575,190	69,597,590
1967-68	39,970,136	58,812,136
1968-69	29,529,285	51,453,285
1969-70	31,415,430	49,202,630
1970-71	31,939,880	54,540,880
1971-72	23,677,925	41,357,225
1972-73	30,977,800	45,239,100
1973-74	28,443,000	42,305,500
1974-75	40,081,500	55,996,500
1975-76	40,664,387	59,063,387
1976-77	39,795,375	59,238,275
1977-78	45,734,500	64,380,200
1978-79	43,009,533	65,936,933
1979-80	46,374,919	76,206,619
1980-81	53,512,622	86,419,513
TOTAL	1,757,590,891	2,284,927,102

Seedling Survival

One year after seedlings are out-planted, approximately 10% of the plantings in each county are sampled to determine the overall state survival rate. Through these examinations, the Forestry Commission can determine the reason for failures and recommend steps to eliminate such failures in the future. This year the overall state survival indicated by the sampling was 55% compared to 84% the previous year. The decline was a result of very hot, dry weather following the 1979-80 planting season.

Research

The Forestry Commission continued with cooperative research projects with Clemson University. Testing of the chemical "Maintain" continues. This product restricts height growth. It is possible the use of this chemical may allow summer planting.

The Forestry Commission also cooperates with the U. S. Forest Service on research. The most recent work in this area was research work with mycorrhiza.

Work with growth and summer out-planting of loblolly and longleaf containerized seedlings continues with promising results of preliminary tests. Most of these seedlings have been planted on the Sand Hills State Forest.

Forest Tree Seed Collection

Each year the Forestry Commission collects cones and other fruit to obtain seed for tree seedling production. Field offices locate private collectors in good seed producing areas to obtain part of the seed that is needed. An increasing amount of seed is now being obtained from our tree seed orchards. These cones are collected by Commission personnel. The seed crop last year was poor. Cones and seed collected were as follows: Coastal loblolly pine cones from seed orchard, 280 bushels; Piedmont loblolly pine cones from seed orchard, 201 bushels; regular Coastal loblolly, 250.5 bushels; longleaf pine cones, 387 bushels; 1.75 gallons of dogwood berries; 55 pounds of redcedar berries; 4.5 bushels of sweetgum balls; 258.5 bushels of walnuts in husk; and 18 pounds of baldcypress cones.

In addition to these collections, 200 pounds of white pine seed were acquired from the North Carolina Forest Service.

The seed extractory was operated for the twenty-fourth year with continued good results. Seed costs for 1980-81 averaged \$17.50 per pound of seed for seed orchard cones and \$12.65 per pound of seed for others. Seed orchard seed is valued nationally at \$100 to \$250 per pound if available at all.

Forest Tree Improvement

A forest tree improvement program was begun in 1963 by the South Carolina Forestry Commission to provide genetically improved seed for all loblolly, slash and longleaf seedlings grown in Commission nurseries. Seed orchards have been established as follows:

Piedmont Loblolly Pine (disease resistant)	5	acres
Piedmont Loblolly Pine	40	acres
Second Generation Piedmont Loblolly Pine	9	acres
Coastal Loblolly Pine (disease resistant)	5	acres
Coastal Loblolly Pine	31	acres
Coastal Loblolly Pine (1.5 generation)	39	acres
Second Generation Coastal Loblolly Pine	4	acres
South Carolina Slash Pine	21	acres
Georgia Slash Pine	22	acres
Longleaf Pine	12	acres
Virginia Pine	1.5	acres
Arizona Cypress	1.25	acres
TOTAL	190.75	

In order to have a source for future superior genetic material, the following acreages of clone banks have been established:

Piedmont Loblolly Pine New Plantation Selections	5.8 acres
Coastal Loblolly Pine New Plantation Selections . .	2.2 acres
TOTAL	8.0 acres

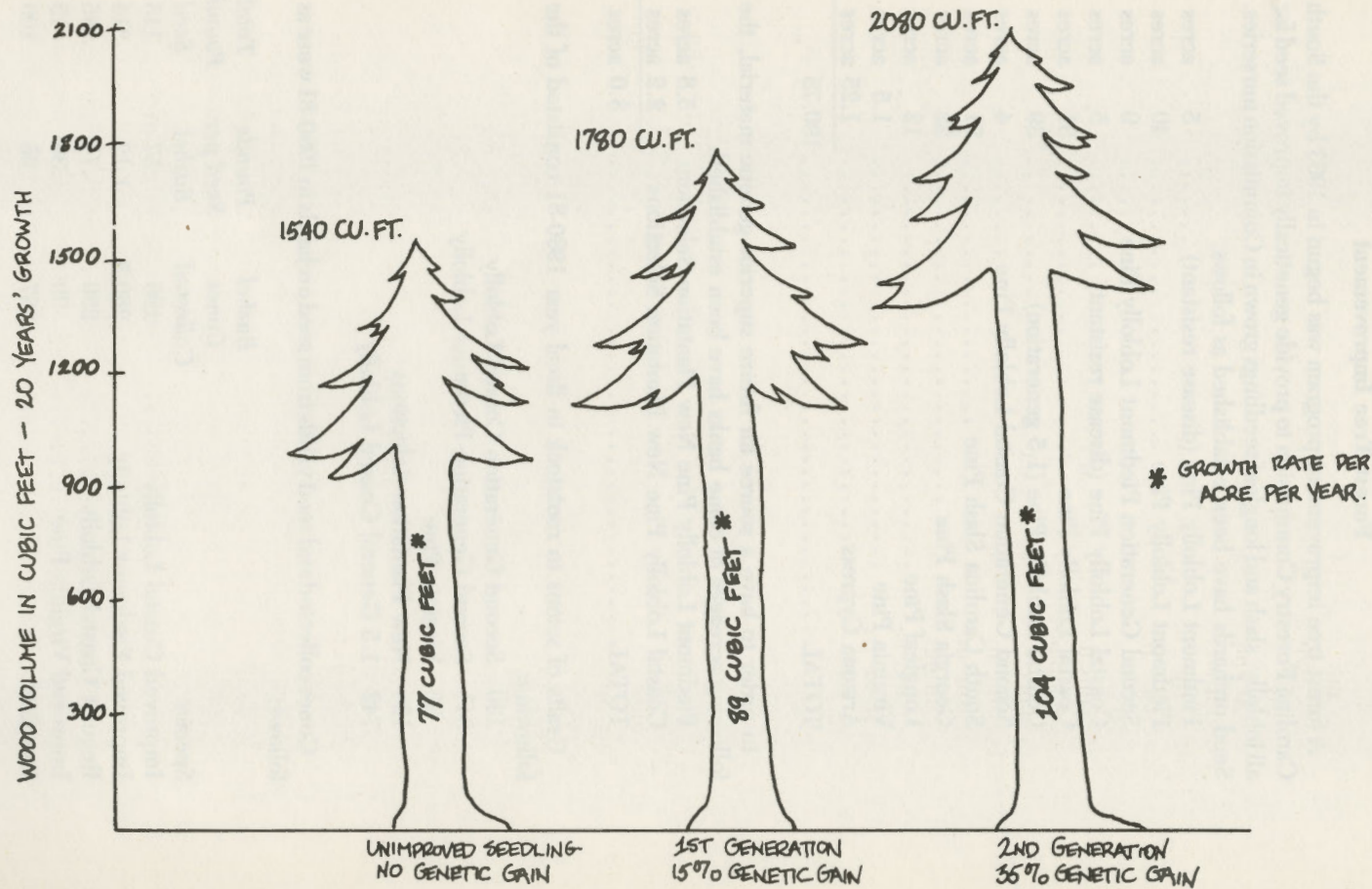
Grafts of scions to rootstock in fiscal year 1980-81 consisted of the following:

130	Second Generation Coastal Loblolly
341	Second Generation Piedmont Loblolly
36	Virginia Pine
128	New Plantation Selections
742	1.5 General Coastal Loblolly

Cones collected and seed yields from seed orchards in 1980-81 were as follows:

<i>Species</i>	<i>Bushel Cones Collected</i>	<i>Pounds Seed per Bushel</i>	<i>Total Pounds Seed</i>
Improved Coastal Loblolly	196	.57	115
Improved Piedmont Loblolly	280.5	1.12	314
Regular Coastal Loblolly	250	.74	186
Improved Virginia Pine	39	.38	15
Longleaf	387	.26	100

GROWTH COMPARISON: GENETICALLY IMPROVED / UNIMPROVED SEEDLINGS



It is anticipated that this seed will produce 920,000 improved Coastal loblolly pine seedlings, 2,512,000 improved Piedmont loblolly pine seedlings, 1,488,000 regular Coastal loblolly pine seedlings, and 500,000 longleaf pine seedlings. Most of the improved seedlings produced from these seed will be available to landowners for out-planting during the 1981-82 planting season. However, because of the low yield this year, they will have to be supplemented with seed from cold storage.

Progeny test plantings were continued for the tenth year and included Coastal loblolly pine, Georgia slash pine and South Carolina slash pine. A total of 6.61 acres of progeny test was planted in February 1981. This brings the total progeny planting acreage to 299.8.

Measurements were made in the five year and eight year old progeny test plantings. Data from these measurements will be used to determine the superiority of the selected clones, several selections have been made from these plantings for use in second generation seed orchards.

The Forestry Commission continued as a member of the North Carolina State University Tree Improvement Cooperative Program.

Anticipated 1981-82 Seedling Production

Planned production of seedlings for the 1981-82 planting season is approximately 56,800,000. Seedling production has been increased to provide for landowners participating in the Forestry Incentives Program. Species for distribution will include improved loblolly, loblolly, improved slash, longleaf, improved Virginia pine, white pine, black walnut, baldcypress, sweetgum, yellow-poplar, sycamore, red-cedar and Arizona cypress.

INSECT AND DISEASE

Forest Insect and Disease Control Activities

The Forestry Commission cooperates with the State Plant Pest Regulatory Service and the U. S. Forest Service, Division of Forest Insect and Disease Management in a program to detect, evaluate, and suppress forest pests. Cooperative agreements with these two agencies make their technical assistance and advice available to the Commission of Forestry.

The current forest pest detection and reporting system involves the reporting by field foresters of forest pests that are causing abnormal losses, require control action, or which may present new problems. Aerial surveys are made periodically of specific pests to determine occurrence and the need for suppression action.

The southern pine beetle outbreak which began in July, 1979 continued at epidemic levels during the fiscal year in 20 piedmont counties. Data from two aerial pre-suppression surveys conducted in August and

March indicated that 8.8 million board feet and 18,500 cords of pine were killed during the fiscal year. This timber had a stumpage value of 1.1 million dollars. Throughout the year, the Commission continued assisting landowners in an intensive salvage-suppression project. As of June 30, 1981, 92,081 cords and 86,000 board feet had been salvaged. This made the salvage efficiency of the project 70%. Five detection flights conducted in coastal counties throughout the fiscal year indicated that there was no major southern pine beetle problem in the lowcountry region. Present bark beetle population levels indicate a subsidence of the outbreak by September, 1981.

During the summer and fall of 1980, an *Annosus* root rot demonstration area was established on Manchester State Forest. Three blocks of 20 year-old planted pine were thinned and treated for annosus control. One block was thinned but not treated to serve as a check area. The treatments tested include summer thinning, borax stump treatment, and *Peniophora* stump treatment. *Annosus* spread will be measured over the next 5 years, damage will be recorded, and benefit/cost assessments will be made for each treatment. When results become apparent, signs will be erected on the various areas showing treatments and effectiveness. The areas will then be opened for public viewing.

During December and January, all Commission nurseries were surveyed for mycorrhizal development and possible diseases. Most seedlings had above average mycorrhizal development and good root systems.

One area at Coastal Nursery was found to have a nematode problem. Poor quality seedlings were culled in the nursery beds. Seedlings from this problem area were outplanted at Manchester State Forest to determine the effectiveness of our culling procedures. These seedlings were grouped in batches of high, medium, low, and no damage, based on visual inspection of the root systems. As of June 30th the seedlings with no or low root damage had good survival, while the medium and high infection levels had high mortality. Since the seedlings with medium and high damage had been culled, this demonstrated the effectiveness of our culling procedure.

Oak wilt disease is known to occur in Chesterfield, Kershaw, Lancaster, Lee and Richland Counties. It appears to be spreading very slowly and causing losses only to low value scrub oaks. Since there is potential for loss in valuable trees such as shade trees, periodic surveys are made to keep up with the spread.

Dutch elm disease has been confirmed in Aiken, Anderson, Chester, Chesterfield, Edgefield, Fairfield, Greenville, Greenwood, Lancaster, Laurens, Lexington, Newberry, Oconee, Pickens, Richland, Saluda, Spartanburg and York Counties. It probably occurs in the other piedmont counties and is expected to gradually spread throughout the state. The primary agent of spread, the smaller European elm bark beetle, occurs statewide.

Commission foresters made approximately 1,656 field checks of insect and disease problems. Appropriate recommendations for prevention and control were given in each case. Numerous inquiries were handled by telephone, mail, and personal contact that did not require field checking.

TRAINING SECTION

The Training Section plans, coordinates and evaluates the Forestry Commission training in all subject areas.

Each year a training schedule is prepared in cooperation with all program managers. This helps to set priorities and to insure that needed training is planned for and given in a logical order.

Standard training programs have been prepared or are being prepared for new employees in all job areas. These programs will ensure that all subjects are covered in a logical order and will help the new employee reach the standards for the assigned job as soon as practical. Programs are in use for foresters, county rangers, fire tower operators, mechanics, wardens and radio technicians. Programs for other jobs will be prepared on a regular basis.

A training library including manuals, films, tapes, slides, etc., is maintained.

Training highlights for 1980-81 included the following:

1. A three day "Basic Fire Fighting School" was held for all new fire wardens, rangers and foresters. This school was also conducted as refresher training for all fire fighting personnel in Spartanburg District.
2. Western Fire Team Training was conducted for fourteen new fire team volunteers.
3. Four days of maintenance and preventive maintenance training was given to mechanics.
4. A "Natural Regeneration Workshop" was held for all foresters at Clemson University. This training was conducted by the Clemson University Forestry Department.
5. A "Forest Tax School" for foresters was conducted by the U. S. Forest Service.
6. A "Prescribed Burning School" was conducted for selected foresters and rangers.
7. A basic forest law enforcement training course was developed in conjunction with the S. C. Criminal Justice Academy. This three week course was conducted by the Academy for Forestry Commission personnel that hold law enforcement commissions.
8. A safety training program was conducted for personnel that service multi-piece rim wheels.
9. A rural fire department training program was conducted by Forestry Commission personnel for fifteen rural fire departments.

FOREST FIRE PROTECTION

Introduction

Beginning in 1945 with the passage of the State Forest Fire Protection Act, all state and privately owned lands have been provided intensive forest fire protection by the South Carolina State Commission of Forestry.

Within South Carolina, there are 12,031,090 acres of state and privately owned woodlands now under protection. An additional 548,724 acres of National Forest lands are protected by the U. S. Forest Service. Other Federal agencies own and protect another 280,101 acres of land in South Carolina.

Organization:

As an organization, the State of South Carolina is divided into two regions: the Coastal Region, consisting of four districts, Florence, Kingstree, Orangeburg and Walterboro; and the Piedmont Region, consisting of three districts, Camden, Newberry and Spartanburg and two State Forests, Sand Hills and Manchester. The fire control activities of the state are coordinated and supervised by two Regional Foresters. In addition, each district is supervised by a District Forester, and each state forest is supervised by a Forest Director. Each of the seven districts consists of several county fire control units that work directly with landowners on forest fire prevention, detection and suppression activities. In charge of each of the 46 county units within the seven districts is a County Ranger, who supervises the activities of all Wardens and Tower Operators within the county.

Assisting the various county units are the many volunteer personnel encountered while conducting fire control activities. A total of 29,607 volunteer personnel assisted during 1980-81.

Cooperative Agreement with the U. S. Forest Service:

A formal agreement is maintained between the S. C. State Commission of Forestry and the U. S. Forest Service whereby each party agrees to render assistance to the other in detecting and suppressing forest fires along National Forest boundaries.

Law Enforcement:

During fiscal year 1980-81 the Forestry Commission had a total of ninety-nine employees commissioned as law enforcement officers. These officers are trained in the various aspects of forest fire law enforcement and are empowered by the Governor to enforce forestry laws in the State. Forest fire law enforcement within South Carolina is accomplished with the cooperation of the State Law Enforcement Division (SLED), County Sheriffs, and other local officers. As in previous years, the cooperation from all law enforcement agencies was excellent.

Law enforcement records for this year show a total of 104 prosecutions and 95 convictions relating to violations of the state forest fire laws. Sixty-three prosecutions and 56 convictions under the Careless and Negligent Law; 40 prosecutions and 38 convictions under the Burning Notification Law; and 1 prosecution and 1 conviction obtained under other violations.

Restrictions on Burning:

Adverse fire weather conditions and an increased incident of wildfires during the spring months resulted in several periods when restrictions were placed on outdoor burning. On March 11, 1981, State Forester Kilian, under Section 48-35-50 of the 1976 Code of Laws, cancelled the receiving of notifications in Orangeburg and Walterboro Districts. On March 13, notifications were cancelled in Florence and Kingstree Districts. On March 16, notifications were cancelled statewide. With continued high fire losses, Governor Riley, under Section 48-31-10 of the 1976 Code of Laws, issued a proclamation forbidding the use of fire. After general rains were received on March 18, all restrictions were lifted.

Fire Plans:

Each of the state's 46 counties is provided a fire control plan that guides and controls the various fire suppression activities within the county. These plans are kept current and revised to conform with changing conditions and the latest operating procedures.

A fire control plan is prepared for landowners who request assistance and guidance in maintaining adequate forest fire protection for their woodlands.

Southeastern States Forest Fire Compact Commission:

In 1954 the General Assembly passed legislation enabling South Carolina to join with nine (9) other southeastern states to form a Forest Fire Compact Commission. Other states belonging to the Commission are: Alabama, Georgia, Florida, Kentucky, Mississippi, North Carolina, Tennessee, Virginia, and West Virginia. The membership of the Commission for each state is composed of a Compact Administrator (the State Forester), and a four-member Advisory Committee. The Advisory Committee for South Carolina consists of: Leonard A. Kilian, Jr., State Forester, Chairman; Senator L. Marion Gressette, Calhoun County; Representative Marion P. Carnell, Ware Shoals; and two members, Mr. Harold Lott of Blackville, and Mr. Authur Smith of Eastover.

Twenty-sixth Annual Meeting (SSFFCC) — May 28, 1980:

The twenty-sixth annual meeting of the Southeastern States Forest Fire Compact Commission (SSFFCC) was held on May 28, 1980 in Oklahoma City, Oklahoma. State Forester Leonard A. Kilian, Jr., was

elected Chairman. Roger Hatch, U. S. Forest Service, Atlanta, is Secretary Coordinator.

Twenty-seventh Annual Meeting (SSFFCC) — May 20, 1981:

The twenty-seventh annual meeting of the Southeastern States Forest Fire Compact Commission (SSFFCC) was held on May 20, 1981 at Hilton Head Island, South Carolina. State Forester Leonard A. Kilian, Jr., was Chairman. Several working committees were established to improve the effectiveness of the Compact.

Southern States Fire Chiefs Meeting:

The meeting of the Southern Fire Chiefs was held in Little Rock, Arkansas, on May 27-28, 1981. The Texas Fire Chief was program chairman. Plans are indefinite for the 1982 meeting.

Fire Towers:

The Forestry Commission's basic forest fire detection program is accomplished by the interlocking network of 139 forest fire lookout towers. Operating year-round, these towers are strategically located so that each tower's normal range of visibility overlaps with the next adjoining tower's area. With such overlapping coverage, all smokes and suspected wildfires can be observed, located, and checked out.

Tower operators in state and federal towers cooperate in spotting and reporting fires that occur within their range of visibility. Radio communications are maintained between state and federal towers at Kelly-Whitmire and McCormick-Liberty Hill. Detection through the use of spotter aircraft is used extensively by the U. S. Forest Service in South Carolina and in many areas supplemental forest fire detection by towers is performed only on higher fire danger days.

S. C. Disaster Preparedness Agency (Civil Defense):

On April 6, 1973, an act was signed by the Governor providing for Civil Defense and Disaster Control in South Carolina. This act set up an agency to be designated as the South Carolina Disaster Preparedness Agency (formerly Civil Defense).

The South Carolina State Commission of Forestry maintains contact with the S. C. Disaster Preparedness Agency and cooperates closely with them on matters concerning all emergencies and natural disasters that occur. The Forestry Commission also provides communications between Disaster Preparedness Headquarters and local Civil Defense chairmen during civil defense alerts and exercises.

Forestry Commission personnel also participate in exercises conducted by the S. C. Disaster Preparedness Agency.

The Forestry Commission participated in the H. B. Robinson Nuclear Facility exercise on March 11-12, 1981, and also the V. C. Summer Facility exercise on May 1, 1981. The purpose of these exercises was to test the response of state and local government to a major accident at these fixed nuclear facilities.

The Forestry Commission provided personnel at the State Emergency Operations Center in Columbia and at the Forward Emergency Operations Center in Hartsville and Winnsboro for the emergency exercises. The communications network of the Forestry Commission is utilized for back-up communications during emergencies of this type. A decision maker from the Forestry Commission is also available at both centers during emergencies.

Air Tanker Program, S. C. State Commission of Forestry:

The primary purpose of the air tanker is to aid ground crews in the initial attack of going fires. It is also used in areas of difficult terrain such as boggy areas and steep mountainous slopes where the use of ground equipment is limited. Air tankers cannot replace ground equipment, but because of their capability to respond quickly when needed they can keep a fire from spreading until ground crews can arrive and complete control.

The S. C. State Commission of Forestry has used air tankers for retardant delivery on wildfires for the past three fiscal years. In all years, tankers were contracted for the peak fire occurrence months of February, March and April.

The following is an evaluation of the cost-effectiveness of air tankers for fiscal year 1980-81:

Number of fires on which used	69
Number of drops	94
Number of hours flown	53:11
Acres estimated saved by tankers	3,329
Estimates of values saved	\$774,708
Cost of program	\$100,849
Benefit/cost ratio	7.7 to 1

The air tanker project was carried out during the spring fire season. Two air tankers were under contract for the period March 1 to April 15, 1981. In addition, one tanker was used February 25 thru 28 and April 15 thru 19.

Under a contract with RALCO of Castro Valley, California, two 1,000 gallon PV-2 tankers were used. The tankers were originally stationed at Georgetown and Walterboro. Late in the season, the tanker stationed at Walterboro was moved to Camden. In addition, a satellite base was set up at Marion and a mobile base at Spartanburg.

Aerial delivery of retardants has proven to be a very effective program. Its best use is in initial attack and backup for ground suppression units, especially in high value areas where the potential for large loss is great.

Aerial Detection:

The Forestry Commission is realizing each year the necessity of aerial detection. During 1980-81, 1665.8 hours were flown using contract aircraft. In addition, the Forestry Commission operates one excess property aircraft and this aircraft was flown a total of 182.6 hours during the year. Both contract and Forestry Commission aircraft are used to separate legal burnings from forest fires, to help ground crew personnel find the best way into a fire area, to warn of existing dangers, and many other indispensable uses.

SUMMARY OF AIRCRAFT USE — 1980-81

Month	Camden Hours	Florence Hours	Kingstree Hours	Newberry Hours	Orangeburg Hours	Spartanburg Hours	Walterboro Hours	Total Hours
July	—	—	4.6	—	3.0	—	—	7.6
August	—	—	9.0	—	8.7	—	6.5	24.2
September	—	3.7	5.6	—	—	—	—	9.3
October	—	—	—	—	8.2	—	—	8.2
November	—	—	—	—	2.0	10.1	—	12.1
December	—	—	28.4	—	27.8	—	10.1	66.3
January	8.2	7.1	70.6	2.3	46.6	18.1	110.4	263.3
February	35.5	45.1	94.3	—	50.3	—	99.5	324.7
March	64.9	176.0	245.5	22.6	65.1	22.4	303.6	900.1
April	3.2	46.8	69.8	—	2.7	—	—	122.5
May	—	32.8	39.6	—	19.1	—	12.3	103.8
June	—	—	—	—	6.3	—	—	6.3
TOTAL	111.8	311.5	567.4	24.9	239.8*	50.6	542.4	1,848.4

* This figure includes 57.2 hours contract aircraft and 182.6 hours Forestry Commission aircraft.

Firebreak Plowing:

Beginning in 1964, the Forestry Commission was authorized to plow firebreaks for private landowners and to charge for this service on an hourly rate. This rate was amended during the 1971 session of the Legislature and the charge is now \$12.00 per hour for all firebreak plowing equipment. During the sixteen (16) years that this firebreak plowing service has been available to woodland owners of South Carolina, a grand total of 17,951 miles of firebreaks (construction and maintenance) have been plowed. Listed below is a summary by district of firebreak plowing for fiscal year 1980-81.



A cost benefit of 7.7 to 1 was experienced in the use of air tankers during the spring fire season when high value plantations are particularly vulnerable to wildfire.

FIREBREAK SERVICE BY DISTRICT

Fiscal Year 1980-81

<i>District</i>	<i>No. of Properties</i>	<i>No. of Hours Plowed</i>	<i>Approximate Miles Plowed</i>
Camden	65	113	119
Florence	149	296	338
Kingstree	127	343	547
Newberry	34	154	121
Orangeburg	153	300	361
Spartanburg	24	74	57
Walterboro	85	640	737
STATE TOTAL	837	1,920	2,280

Prescribed Burning Assistance:

A special proviso passed July 1972 provided that the S. C. State Commission of Forestry may, upon request, provide reasonable assistance to private persons in the use of fire purposely set to forest lands for specific and/or prescribed forest management objectives. The charge for this service is fifty (50) cents per acre. This prescribed burning assistance is designed to be compatible with Forestry Commission policies and procedures and also closely parallels requirements set up by the S. C. Pollution Control Authority. Forest fire control mechanized equipment and personnel under this practice are assigned to stand by the immediate area to assist should emergency control of this prescribed burning be required. Hand tools, such as backfire torches, fire rakes and swatters, are also made available to the landowner.

For fiscal year 1980-81 assistance was provided to 48 individual landowners involving approximately 3,627 acres of woodland.

Fire Weather Forecasting:

Beginning in July 1965, regular and special fire weather forecasts have been available to the S. C. State Commission of Forestry and other interested agencies and individuals through the National Weather Service Office, West Columbia.

Throughout the fire season, fire weather forecasts are received daily by the Forestry Commission and transmitted to all districts, counties and forestry interests. Special forecasts are available upon request for areas with large going fires and during periods of extreme fire danger.

Fire Danger Measurement:

Fire danger measurement stations are located in each county to obtain essential local weather information. This information is disseminated to all fire control personnel for guidance in work planning and fire suppression readiness.

Fourteen of these county weather stations furnish special information to the South Carolina Fire Weather Forecasters to assist with general forecasting. Forest fire danger is rated on the National Fire Danger Rating System by class day ranging from 1 to 5, with 1 being the least dangerous and 5 the period of greatest fire danger. During 1980-81 fiscal year, fire danger station averages indicated the following:

Number of Class 1 Days —	135
Number of Class 2 Days —	85
Number of Class 3 Days —	60
Number of Class 4 Days —	21
Number of Class 5 Days —	2

Legal Fires:

Legal fires are all forest fires which are previously authorized by the landowner, and started by him or his authorized agent and burn entirely upon his land. Legal fire records show that individual landowners conducted 16,301 fires that burned an estimated 605,078 acres for various purposes during 1980-81.

Legal fire categories and the acreage burned are as follows:

<i>Reason for Burn</i>	<i>Number</i>	<i>Acreage</i>
Hazard Reduction	3,456	321,610
Hunting Preserves	1,045	129,694
Debris Burning	7,090	76,025
Grazing	412	11,828
Miscellaneous	4,298	65,921
Total	16,301	605,078

Rural Community Fire Protection:

The Rural Development Act of 1972, Title IV (Public Law 92-419) and as amended by Public Law 95-113, the Food and Agriculture Act of 1977, authorized the Secretary of Agriculture to develop a three-year pilot Rural Community Fire Protection Project. This program applies to rural communities throughout the United States and was established to provide financial and technical assistance for organizing, training, and equipping local fire fighting forces in communities under 10,000 population. Such qualifying fire departments were able to apply for these funds on a 50-50 matching basis. Funds were utilized mostly on equipment such as hose, protective clothing, communications equipment and breathing apparatus.

Funding began in fiscal year 1975 when South Carolina received \$53,000 for distribution and continued in fiscal year 1976 when \$62,840 was made available. Funding since fiscal year 1977 has been set at \$50,200. One hundred and seventeen departments were assisted with these funds during fiscal year 1980-81.

Federal Excess Equipment:

During fiscal year 1976-77 the Forestry Commission began lending excess military equipment to rural fire departments. This equipment, loaned to the Forestry Commission by the U. S. Forest Service, is provided to qualifying rural fire departments for conversion to useful pieces of fire fighting equipment. The department receiving this equipment agrees to paint, maintain, insure and respond to calls by the Forestry Commission. All equipment is returned to the Forestry Commission when no longer needed by the department.

Since the Cooperative Rural Fire Program began in January of 1976, two hundred forty-eight vehicles and other miscellaneous tanks and

spray equipment have been loaned to 180 rural fire departments in South Carolina. At the present time, 166 departments have in use 261 pieces of excess property equipment. During fiscal year 1980-81, 25 rural fire departments were issued 27 pieces of excess property equipment.

Smoke Management:

In the spring of 1980, Voluntary Smoke Management Guidelines for Forestry Prescribed Burning Operations were adopted. This statewide program was developed by a committee of the S. C. Forestry Association in cooperation with the S. C. State Commission of Forestry.

The objective of the program is to minimize particulate concentrations of smoke in smoke sensitive areas resulting from forestry prescribed burning operations by defining those days and volumes of vegetative debris that may be burned.

Eight training meetings were held throughout the state and the program was officially instituted on July 1, 1980. During this first year 457 prescribed burns, representing 66,707 acres, were carried out under the Voluntary Smoke Management Guidelines.

Forest Fire Summary:

During fiscal year 1980-81, South Carolina recorded 14,405 wildfires and 94,909 acres burned. The average size fire was 6.6 acres, compared to the five-year average of 4.8 acres. This was the largest number of fires ever recorded. Several factors combined to bring about this unusual fire occurrence: The previous year was a light year; drought conditions existed during July, August, and September; deficit rainfall continued throughout the fire season. These natural conditions combined with a marked increase in deliberately set fires to bring about the record number of wildfires.

During the year 23 fires burned over 300 acres each, and five fires burned over 1,000 acres each. Aiken County had one fire that burned 1,100 acres; Charleston had one fire that burned 1,350 acres; Georgetown had one fire that burned 1,275 acres and Horry County had two large fires, one that burned 2,500 acres and one that burned 1,525 acres.

The greatest number of fires and acreage burned this year were experienced during the month of March (3,517 fires and 39,323 acres burned). There were five months — December, January, February, March and April — when monthly fire occurrence was over 1,000 fires.

The distribution of fire occurrence continued to follow the same pattern as previous years. Counties recording the largest number of fires and acreage burned during the year were: Berkeley, with 1,059 fires and 7,069.6 acres burned; Williamsburg with 985 fires and 4,642.8 acres burned; Jasper with 962 fires and 8,001.7 acres burned; Colleton with 857 fires and 10,001.8 acres burned, and Horry with 720 fires and 8,480.6 acres burned.

Nine counties recorded less than 100 fires during the year. The counties recording the least number of fires and acreage burned were Saluda, with 43 fires and 173.2 acres burned; Union with 63 fires and 508.0 acres burned; and Chester with 69 fires and 320.8 acres burned.

Average precipitation was recorded as follows:

<i>Month</i>	<i>Amount Rainfall (inches)</i>	<i>Departure From Normal (inches)</i>
July 1980	3.19	-2.71
August 1980	3.26	-1.92
September 1980	7.22	+2.85
October 1980	3.60	+0.72
November 1980	3.15	+0.50
December 1980	2.24	-1.25
January 1981	0.99	-2.54
February 1981	4.15	+0.37
March 1981	3.24	-1.60
April 1981	2.02	-1.54
May 1981	3.44	-0.11
June 1981	<u>4.80</u>	<u>+0.21</u>
Total	41.30	-7.02

A five year summary of precipitation by fiscal year is shown below:

<i>Year</i>	<i>Amount Rainfall (inches)</i>	<i>Departure From Average (inches)</i>
1976-77	55.13	+ 6.81
1977-78	55.11	+ 6.79
1978-79	57.48	+ 9.16
1979-80	59.03	+10.71
1980-81	<u>41.30</u>	<u>- 7.02</u>
Average	53.61	+ 5.29

During the 1980-81 fiscal year a total of 6,558 fires were discovered by fire towers and relayed to forest fire control personnel for suppression action. Landowners and cooperating citizens also responded by calling in 8,431 fires to the Forestry Commission.

Forestry Commission personnel also checked out 6,340 false alarms during the year. A "false alarm" is a check on a suspected forest fire that ultimately does not require any suppression action. This includes legal prescribed burnings and legal field fires.

The leading causes of forest land fires in order of importance were: incendiary with 7,430 fires; debris burning with 3,026 fires; and smoking with 1,420 fires.

Precipitation in South Carolina during 1980-81 averaged 41.30 inches as recorded at the 46 fire danger measurement stations located within the state. This precipitation is 7.02 inches below the state's annual average of 48.32 inches. (The annual average precipitation is compiled by the National Weather Service and is calculated using the 1941-1970 precipitation records.)

TABLE 1 — PROTECTION PERSONNEL
Fiscal Year 1980-81

<i>County</i>	<i>Organized Personnel</i>			<i>Totals</i>	<i>Volunteer Personnel</i>	<i>Grand Total</i>
	<i>Rangers</i>	<i>Wardens</i>	<i>Tower Operator</i>			
Abbeville	1	3	1	5	828	833
Aiken	1	6	5	12	1,333	1,345
Allendale	1	3	3	7	112	119
Anderson	1	3	3	7	627	634
Bamberg	1	3	2	6	399	405
Barnwell	1	4	2	7	263	270
Beaufort	1	5	4	10	947	957
Berkeley	1	8	4	13	1,402	1,415
Calhoun	1	3	2	6	237	243
Charleston	1	7	3	11	939	950
Cherokee	1	2	1	4	1,488	1,492
Chester	1	4	1	6	397	403
Chesterfield	1	4	4	9	526	535
Clarendon	1	5	3	9	527	536
Colleton	1	8	5	14	924	938
Darlington	1	3	3	7	788	795
Dillon	1	3	2	6	114	120
Dorchester	1	6	3	10	577	587
Edgefield	1	3	1	5	194	199
Fairfield	1	5	3	9	787	796
Florence	1	6	4	11	1,019	1,030
Georgetown	1	6	4	11	1,238	1,249
Greenville	1	4	4	9	1,449	1,458
Greenwood	1	3	2	6	70	76
Hampton	1	4	3	8	170	178
Horry	1	8	4	13	1,111	1,124
Jasper	1	7	2	10	802	812
Kershaw	1	7	6	14	450	464
Lancaster	1	4	2	7	474	481
Laurens	1	4	2	7	615	622
Lee	1	3	3	7	140	147
Lexington	1	7	5	13	1,657	1,670

County	Organized Personnel			Totals	Volunteer Personnel	Grand Total
	Rangers	Wardens	Tower Operator			
Marion	1	5	3	9	414	423
Marlboro	1	5	3	9	475	484
McCormick	1	2	2	5	203	208
Newberry	1	4	2	7	483	490
Oconee	1	3	2	6	342	348
Orangeburg	1	7	5	13	780	793
Pickens	1	4	5	10	285	295
Richland	1	7	4	12	916	928
Saluda	1	3	1	5	42	47
Spartanburg	1	4	4	9	508	517
Sumter	1	5	3	9	746	755
Union	1	3	1	5	283	288
Williamsburg	1	8	4	13	924	937
York	1	4	4	9	602	611
TOTALS	46	215	139	400	29,607	30,007

TABLE 2 — SUMMARY OF FOREST FIRES BY MONTHS
July 1, 1980 - June 30, 1981

Month	No. of Fires	Percent of Total Number	Area Burned (Acres)	Average Area Per Fire (Acres)
July	387	2.7	1,494.9	3.9
August	713	5.0	3,016.3	4.2
September	520	3.6	1,518.9	2.9
October	219	1.5	427.0	1.9
November	280	1.9	840.8	3.0
December	1,125	7.8	3,498.1	3.1
January	2,601	18.1	11,848.3	4.6
February	2,711	18.8	22,342.0	8.2
March	3,517	24.4	39,323.3	11.2
April	1,159	8.0	5,850.0	5.0
May	804	5.6	3,311.9	4.1
June	369	2.6	1,437.3	3.9
TOTALS	14,405	100.0	94,909.0	6.6

County	Lightning		Campfire		Smoking		Debris Burning		Incendary*		Equipment Use		Railroad		Children		Miscellaneous		Total	
	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres
Abbeville	3	158.4	—	—	24	112.0	13	19.6	8	10.0	1	18.0	22	111.8	9	20.4	13	170.9	93	620.8
Aiken	27	256.2	3	4.5	48	191.0	70	139.0	126	1,226.3	13	279.1	2	26.1	41	43.8	37	165.2	367	2,331.2
Allendale	2	18.0	1	0.7	23	39.8	33	130.5	45	518.8	5	13.4	26	60.4	4	8.1	13	34.2	152	823.9
Anderson	1	2.0	1	1.0	37	102.2	31	121.2	22	54.4	2	14.0	1	6.0	8	16.7	10	28.0	113	345.5
Bamberg	1	0.4	2	1.3	10	12.6	57	186.3	91	310.0	5	3.1	5	1.5	4	1.5	3	3.3	178	520.0
Barnwell	4	21.0	—	—	24	269.1	31	67.0	28	247.0	9	38.6	2	5.1	4	22.5	4	38.0	106	708.3
Beaufort	1	3.0	1	6.0	12	10.0	105	837.5	304	947.5	3	9.4	—	—	10	42.8	8	12.6	444	1,868.8
Berkeley	—	—	1	2.0	25	90.1	115	566.7	845	5,855.2	8	27.5	16	378.9	48	149.1	1	0.1	1,059	7,069.6
Calhoun	2	0.5	1	0.1	29	187.2	39	132.6	5	50.3	8	8.3	6	8.2	3	0.8	2	0.3	95	388.3
Charleston	—	—	1	1.0	22	104.9	61	261.7	290	4,212.3	2	128.0	2	30.0	31	120.0	5	33.0	414	4,890.9
Cherokee	—	—	1	0.4	48	144.8	19	32.6	69	351.4	5	12.8	—	—	16	23.0	7	32.2	165	597.2
Chester	2	27.0	1	8.0	36	93.7	6	15.8	—	—	1	1.0	18	167.8	—	—	5	7.5	69	320.8
Chesterfield	18	67.7	—	—	34	102.1	52	428.1	46	318.9	21	65.2	71	262.3	13	14.2	7	9.9	262	1,268.4
Clarendon	1	0.1	1	4.0	47	125.0	65	246.4	467	4,094.1	15	25.9	4	624.2	3	0.5	7	20.3	610	5,140.5
Colleton	—	—	—	—	43	125.4	156	1,311.4	586	7,925.2	12	63.5	7	277.1	19	61.0	34	238.2	857	10,001.8
Darlington	4	15.6	2	6.4	13	21.5	129	958.7	83	301.1	33	65.8	3	22.5	26	19.3	11	35.7	304	1,446.6
Dillon	4	5.8	3	0.6	53	73.9	56	149.9	53	495.8	7	13.7	14	3.7	32	31.2	18	272.6	240	1,047.2
Dorchester	—	—	1	8.0	19	57.5	74	1,299.1	274	2,379.6	3	35.1	—	—	5	35.5	2	4.0	378	3,818.8
Edgefield	5	26.2	—	—	19	131.5	17	77.5	11	20.0	12	20.6	3	21.1	11	21.2	5	40.4	83	358.5
Fairfield	6	103.1	2	0.2	43	116.9	19	24.2	30	300.7	14	17.4	2	3.1	6	1.3	5	66.8	127	633.7
Florence	2	4.8	2	13.0	107	284.6	124	957.2	445	2,772.4	17	71.3	7	51.2	23	34.4	12	19.1	739	4,208.0
Georgetown	3	7.3	1	1.0	24	36.1	161	3,157.6	266	2,165.6	14	58.6	23	63.0	24	31.1	19	7.0	535	5,527.3
Greenville	3	8.0	3	252.2	56	156.8	59	146.7	46	186.8	18	41.8	—	—	13	14.7	31	85.4	229	892.4
Greenwood	3	2.2	1	1.6	25	28.5	24	88.5	2	0.2	19	36.9	36	88.3	18	16.0	15	6.2	143	268.4
Hampton	1	4.2	—	—	1	5.0	65	228.9	184	1,014.3	5	7.6	8	16.3	5	21.0	11	15.0	220	1,312.3
Horry	8	5.2	4	2.8	31	88.7	110	3,390.5	501	4,526.1	22	31.6	9	54.5	15	59.2	20	322.0	720	8,480.6
Jasper	7	40.3	1	1.0	22	41.7	200	1,221.4	662	6,396.9	14	99.9	30	179.7	19	18.8	7	2.0	962	8,001.7
Kershaw	17	75.1	6	7.8	36	81.5	38	217.8	27	1,090.3	17	18.6	17	58.2	9	12.6	6	44.7	173	1,606.6
Lancaster	—	—	1	60.0	25	100.7	34	149.0	8	135.0	6	28.0	5	7.9	17	22.3	10	34.1	106	537.0
Laurens	3	6.1	—	—	51	201.7	27	88.7	3	12.0	17	29.2	56	215.8	7	9.6	19	36.5	183	599.6
Lee	2	7.0	—	—	28	76.3	34	121.5	106	853.0	5	9.6	3	1.6	5	13.4	7	9.6	190	1,092.0
Lexington	13	35.7	2	7.0	41	36.2	60	67.3	53	142.4	19	16.0	56	130.5	48	49.5	8	46.8	300	521.4
Marion	2	4.8	—	—	20	85.6	80	571.6	38	66.9	10	24.8	11	44.3	10	24.8	8	2.6	179	825.4
Marlboro	3	3.3	—	—	61	125.6	72	154.8	117	374.7	13	133.9	11	95.5	15	6.4	4	2.1	296	896.3
McCormick	2	2.1	1	0.1	15	181.5	18	42.0	12	6.8	6	1.7	20	37.8	4	0.8	7	2.0	85	274.8
Newberry	8	121.3	3	9.4	17	69.0	31	68.4	7	12.7	6	12.6	2	0.5	6	2.8	7	18.6	87	315.3
Oconee	—	—	—	—	5	34.7	19	107.3	17	58.2	6	23.7	3	12.9	7	14.2	32	97.3	89	348.3
Orangeburg	2	27.0	9	39.8	86	266.2	252	1,377.1	346	3,037.1	15	87.5	5	4.7	22	44.8	15	47.1	752	4,931.3
Pickens	4	21.8	2	1.2	16	35.4	36	56.9	33	246.2	4	6.2	4	5.5	23	22.8	23	39.0	145	435.0
Richland	6	49.5	6	7.1	36	65.7	88	240.7	149	866.4	25	65.8	16	70.3	57	128.2	18	40.2	401	1,533.9
Saluda	3	23.5	2	2.0	19	50.7	9	75.5	—	—	8	14.5	—	—	1	2.0	1	5.0	43	173.2
Spartanburg	1	1.0	—	—	41	157.1	29	148.8	33	94.9	6	31.0	11	36.0	17	43.0	2	35.0	140	546.7
Sumter	—	—	1	50.0	8	13.9	88	361.6	173	1,258.5	8	26.8	17	65.9	17	33.5	11	57.0	323	1,867.2
Union	—	—	—	—	15	59.0	9	17.5	10	33.5	5	10.5	14	377.0	8	9.0	2	1.5	63	508.0
Williamsburg	1	0.2	—	—	5	18.1	180	416.3	774	4,176.3	15	8.5	4	15.0	6	8.4	—	—	965	4,642.8
York	—	—	4	9.5	20	29.9	31	57.3	35	95.1	16	29.5	4	110.1	17	15.9	14	15.3	141	362.6
STATE TOTALS	175	1,145.4	71	509.7	1,420	4,441.4	3,026	20,536.7	7,430	59,240.9	495	2,786.5	576	3,752.3	706	1,292.1	506	2,204.0	14,405	94,909.0

* Incendary Fire — A fire willfully set by anyone to burn vegetation or property not owned or controlled by him and without consent of the owner or his agent.

TABLE 4 — FOREST FIRES BY CLASS — FISCAL YEAR 1980-81

County	Class A		Class B		Class C		Class D		Class E		Class F		Class G		Total	
	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres
Abbeville	12	2.3	73	165.3	6	146.2	2	307.0	—	—	—	—	—	—	93	620.8
Aiken	134	18.7	206	373.5	25	630.0	1	209.0	—	—	1	1,100.0	—	—	367	2,331.2
Allendale	24	4.1	110	262.8	17	317.0	1	240.0	—	—	—	—	—	—	152	823.9
Anderson	17	8.9	91	244.6	5	92.0	—	—	—	—	—	—	—	—	113	345.5
Bamberg	27	4.4	137	271.6	14	244.0	—	—	—	—	—	—	—	—	178	520.0
Barnwell	26	5.5	65	155.8	12	324.0	2	223.0	—	—	—	—	—	—	106	708.3
Beaufort	77	21.0	332	845.8	33	598.0	1	104.0	1	300.0	—	—	—	—	444	1,868.8
Berkeley	94	11.0	780	1,910.6	179	4,208.0	6	940.0	—	—	—	—	—	—	1,059	7,069.6
Calhoun	24	3.5	57	131.8	14	253.0	—	—	—	—	—	—	—	—	95	388.3
Charleston	26	4.0	300	838.9	80	1,402.0	5	610.0	2	686.0	1	1,350.0	—	—	414	4,890.9
Cherokee	26	5.2	123	209.0	15	283.0	1	100.0	—	—	—	—	—	—	165	597.2
Chester	5	0.6	58	145.2	6	175.0	—	—	—	—	—	—	—	—	69	320.8
Chesterfield	86	12.3	154	301.7	18	439.4	4	515.0	—	—	—	—	—	—	262	1,268.4
Clarendon	128	15.1	345	865.4	132	2,977.0	4	662.0	1	621.0	—	—	—	—	610	5,140.5
Colleton	161	23.9	475	1,396.4	205	5,034.5	15	2,457.0	1	1,090.0	—	—	—	—	857	10,001.8
Darlington	69	11.8	216	450.8	18	453.0	1	531.0	—	—	—	—	—	—	304	1,446.6
Dillon	94	11.5	137	284.7	7	203.0	2	548.0	—	—	—	—	—	—	240	1,047.2
Dorchester	4	0.6	290	837.2	79	1,662.0	4	739.0	1	580.0	—	—	—	—	378	3,818.8
Edgefield	20	12.3	56	177.2	7	169.0	—	—	—	—	—	—	—	—	83	358.5
Fairfield	40	5.5	74	176.2	12	346.0	1	106.0	—	—	—	—	—	—	127	633.7
Florence	192	17.9	537	1,484.1	77	1,726.0	1	125.0	2	855.0	—	—	—	—	739	4,208.0
Georgetown	182	23.8	285	608.5	59	1,464.0	5	881.0	3	1,275.0	1	1,275.0	—	—	535	5,527.3
Greenville	51	7.6	165	375.8	12	261.0	1	248.0	—	—	—	—	—	—	229	892.4
Greenwood	76	9.8	63	135.6	4	123.0	—	—	—	—	—	—	—	—	143	268.4
Hampton	74	9.7	177	437.6	28	765.0	1	100.0	—	—	—	—	—	—	280	1,312.3
Horry	170	23.3	469	1,135.3	71	1,485.0	7	1,380.0	1	432.0	2	4,025.0	—	—	720	8,480.6
Jasper	176	26.1	611	1,524.6	161	3,576.0	12	2,075.0	2	800.0	—	—	—	—	962	8,001.7
Kershaw	50	6.7	111	267.9	8	196.0	3	540.0	1	596.0	—	—	—	—	173	1,606.6
Lancaster	27	4.2	69	164.8	9	248.0	1	120.0	—	—	—	—	—	—	106	537.0
Laurens	47	6.3	120	262.3	16	331.0	—	—	—	—	—	—	—	—	183	599.6
Lee	29	4.6	136	359.4	24	378.0	—	—	1	350.0	—	—	—	—	190	1,092.0
Lexington	128	16.7	161	295.7	11	209.0	—	—	—	—	—	—	—	—	300	521.4
Marion	47	8.4	113	190.0	19	627.0	—	—	—	—	—	—	—	—	179	825.4
Marlboro	116	15.8	159	279.5	20	481.0	1	120.0	—	—	—	—	—	—	296	896.3
McCormick	50	6.6	29	45.8	5	67.4	1	155.0	—	—	—	—	—	—	85	274.8
Newberry	28	4.4	54	140.7	5	170.2	—	—	—	—	—	—	—	—	87	315.3
Oconee	21	3.3	56	119.0	12	226.0	—	—	—	—	—	—	—	—	89	348.3
Orangeburg	111	16.4	515	1,307.9	122	2,654.0	3	549.0	1	404.0	—	—	—	—	752	4,931.3
Pickens	37	6.6	98	134.4	10	294.0	—	—	—	—	—	—	—	—	145	435.0
Richland	67	9.0	294	660.9	40	864.0	—	—	—	—	—	—	—	—	401	1,533.9
Saluda	2	0.4	36	74.8	5	98.0	—	—	—	—	—	—	—	—	43	173.2
Spartanburg	17	25.8	112	322.9	11	199.0	—	—	—	—	—	—	—	—	140	546.8
Sumter	34	4.9	240	615.3	48	1,022.0	1	225.0	—	—	—	—	—	—	323	1,867.2
Union	—	—	56	95.0	7	266.0	1	147.0	—	—	—	—	—	—	63	508.0
Williamsburg	285	35.1	603	1,357.7	92	2,291.0	4	559.0	1	400.0	—	—	—	—	985	4,642.8
York	25	4.0	111	207.6	1	42.0	1	109.0	—	—	—	—	—	—	141	362.6
State Totals	3,069	479.6	9,459	22,646.7	1,761	40,019.7	93	15,624.0	18	8,389.0	5	7,750.0	—	—	14,405	94,909.0

TABLE 5 — FOREST FIRES BY COUNTIES AND MONTHS — FISCAL YEAR 1950-51

County	July		August		September		October		November		December		January		February		March		April		May		June		Total	
	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres
Abbeville	8	163.9	52	242.7	7	22.0	5	5.6	1	1.5	5	7.2	19	58.9	13	16.7	10	77.1	5	14.1	3	5.9	2	5.2	93	620.8
Aiken	34	135.4	52	167.3	20	21.8	9	3.8	7	50.1	8	34.9	26	23.3	31	135.7	63	1,606.0	25	67.0	72	65.7	20	36.7	2,331.2	
Allendale	3	3.5	10	14.1	14	42.4	2	2.0	5	4.5	13	32.5	18	55.1	17	86.2	48	473.9	7	44.4	10	55.2	5	10.1	152	823.9
Anderson	6	24.7	12	41.4	4	5.6	2	1.2	2	5.2	7	47.2	17	51.2	10	17.1	32	111.5	7	21.3	8	10.9	6	8.2	113	345.5
Bamberg	4	1.2	5	2.1	8	7.4	1	0.4	4	2.3	19	42.7	36	95.2	38	120.5	43	186.4	7	32.3	10	23.9	3	5.6	178	520.0
Barnwell	6	6.7	6	12.2	5	32.4	—	—	1	0.2	4	18.3	20	146.6	17	35.8	31	300.7	4	48.3	10	86.5	2	20.6	106	708.3
Beaufort	1	0.1	8	25.4	4	15.8	5	6.3	2	20.2	40	107.7	118	300.1	97	643.8	123	636.0	20	52.3	16	29.2	10	31.9	444	1,868.8
Berkeley	8	13.2	19	77.6	41	124.8	19	70.1	20	68.7	125	423.1	254	1,419.8	237	1,792.2	224	2,043.5	59	819.6	43	178.9	10	38.1	1,059	7,069.6
Calhoun	4	0.5	9	9.3	5	1.7	—	—	3	0.9	11	28.5	9	43.2	13	67.6	27	202.3	6	11.2	6	20.6	2	2.5	95	388.3
Charleston	2	7.0	10	194.4	5	40.2	10	33.9	5	8.2	33	125.3	71	545.4	96	425.8	109	2,681.5	31	118.8	32	620.4	10	90.0	414	4,890.9
Cherokee	8	18.4	7	4.8	3	27.0	—	—	2	0.8	17	115.2	27	49.4	9	38.4	75	303.8	11	36.4	5	2.6	1	0.4	165	597.2
Chester	2	2.4	8	19.1	—	—	—	—	1	0.3	1	1.0	6	9.6	8	18.7	22	67.2	4	72.0	15	101.5	2	28.0	69	320.8
Chesterfield	17	29.9	22	45.6	18	17.5	2	14.1	6	5.6	17	48.5	21	43.1	29	102.7	63	628.0	38	278.9	13	20.9	16	33.6	262	1,268.4
Clarendon	1	0.2	10	20.5	14	17.4	5	5.7	5	19.5	54	90.3	130	986.4	102	793.1	165	2,464.9	73	377.5	41	299.0	10	63.3	610	5,140.5
Colleton	1	2.0	11	41.9	10	37.7	2	5.3	17	24.8	62	253.0	191	1,256.6	248	3,243.2	211	4,060.4	50	592.5	40	308.5	14	176.3	857	10,001.8
Darlington	20	83.5	25	313.9	25	60.5	7	6.5	3	1.5	14	29.2	30	84.6	38	94.3	77	590.1	27	100.0	15	15.6	23	66.9	304	1,446.6
Dillon	10	22.9	14	14.3	11	6.5	7	6.0	10	7.7	19	19.6	27	29.7	46	432.4	44	425.2	23	44.2	17	15.6	12	23.1	240	1,047.2
Dorchester	2	2.0	6	14.0	9	52.1	2	4.0	4	17.5	28	83.9	110	759.0	96	1,777.0	76	886.0	26	156.8	16	62.0	3	4.5	378	3,818.8
Edgefield	6	10.2	19	116.3	6	41.0	4	8.2	1	3.0	2	35.2	4	8.3	4	18.3	15	36.7	11	69.9	6	4.8	5	6.6	83	358.5
Fairfield	12	20.5	11	111.7	18	77.0	3	0.4	—	—	5	7.9	13	95.4	5	7.6	33	262.7	12	7.0	6	9.6	9	33.9	127	633.7
Florence	12	13.1	13	36.6	23	16.2	20	78.0	24	54.5	60	221.5	153	466.1	143	1,173.4	170	1,672.3	69	340.9	33	87.0	19	48.4	739	4,208.0
Georgetown	14	330.1	21	80.1	31	172.4	4	1.5	6	2.8	61	107.3	93	494.5	97	737.7	127	3,360.8	55	207.7	18	21.7	8	10.7	535	5,527.3
Greenville	14	11.3	13	39.1	1	1.0	2	1.1	13	267.4	15	18.5	40	86.7	20	55.3	68	288.4	31	103.3	5	8.2	7	12.1	229	892.4
Greenwood	15	26.9	25	96.0	8	6.9	4	0.9	5	50.9	4	0.5	15	13.3	5	22.4	27	39.6	20	8.3	5	0.8	10	1.9	143	268.4
Hampton	4	11.7	11	15.9	8	13.9	5	5.8	4	9.2	26	168.8	51	136.7	71	341.6	73	548.4	11	40.6	11	13.1	5	6.6	280	1,312.3
Horry	11	13.2	20	273.6	15	27.8	21	26.1	26	41.9	63	178.0	98	240.9	155	3,619.4	142	3,339.4	95	433.6	59	242.5	15	44.2	720	8,480.6
Jasper	9	5.0	18	57.4	19	96.2	11	61.3	8	8.5	61	267.7	250	1,505.4	222	2,003.9	240	3,186.8	44	170.1	55	313.0	25	326.4	962	8,001.7
Kershaw	11	25.4	32	77.9	14	30.8	5	1.4	3	2.2	10	58.7	16	24.3	26	231.9	27	1,055.1	15	58.0	7	17.4	7	23.5	173	1,606.6
Lancaster	10	17.4	10	24.1	3	56.6	4	5.7	1	0.6	11	55.2	9	25.8	15	45.3	25	223.7	8	66.7	7	14.6	3	1.3	106	537.0
Laurens	14	23.5	24	99.1	7	5.8	1	0.1	2	0.8	11	21.6	26	90.1	23	47.9	39	231.8	17	45.0	10	23.7	9	9.2	183	599.6
Lee	4	3.9	15	40.2	9	27.8	6	6.4	4	15.1	12	40.8	31	470.2	45	195.0	34	174.0	20	85.0	6	13.4	4	20.2	190	1,092.0
Lexington	20	13.5	33	85.0	24	26.8	4	4.6	8	3.2	18	18.3	20	46.1	44	61.5	85	172.2	19	36.6	14	47.0	11	6.6	300	521.4
Marion	7	62.2	7	26.8	8	7.6	5	1.5	7	11.2	11	36.8	23	30.9	31	141.9	33	200.8	34	351.8	6	4.9	7	49.0	179	825.4
Marlboro	4	8.7	19	26.2	17	44.8	—	—	3	4.6	16	11.0	34	38.7	48	227.1	74	301.0	44	87.2	26	95.9	11	51.1	296	896.3
McCormick	11	158.2	9	10.6	7	5.3	3	0.3	5	13.5	5	2.0	6	29.6	4	1.7	15	21.3	3	1.1	12	20.3	5	10.9	85	274.8
Newberry	6	51.4	10	111.3	6	5.3	—	—	3	0.7	1	28.0	14	21.8	3	2.5	20	41.6	13	24.2	7	4.4	4	20.1	87	315.3
Oconee	3	13.8	7	12.2	3	3.5	2	4.2	—	—	7	4.5	21	55.5	8	30.7	25	215.0	8	5.5	4	3.3	1	0.1	89	348.3
Orangeburg	5	8.0	13	41.6	19	78.9	10	6.4	12	5.8	68	237.7	119	494.7	152	1,111.4	227	2,481.0	59	265.2	45	143.8	23	58.6	752	4,931.3
Pickens	8	6.0	12	23.5	2	1.2	—	—	7	12.8	14	31.4	19	34.4	15	99.7	46	98.3	18	122.1	2	2.4	2	3.2	145	435.0
Richland	19	21.7	38	98.7	15	86.4	5	8.7	10	8.3	23	40.3	62	193.0	78	276.6	98	667.4	36	96.3	12	17.1	5	19.4	401	1,533.9
Saluda	4	8.5	13	49.2	5	15.0	—	—	2	2.0	1	2.0	5	10.3	3	12.2	7	66.0	2	7.0	—	—	1	1.0	43	173.2
Spartanburg	5	22.0	11	47.0	9	22.0	2	2.0	3	10.0	7	12.0	11	73.8	21	75.0	51	209.9	9	41.0	11	32.1	—	—	140	546.8
Sumter	7	79.9	21	60.0	14	54.1	8	21.7	3	4.6	23	62.2	58	326.7	70	630.4	69	478.8	17	51.5	23	66.7	10	30.6	323	1,867.2
Union	—	—	8	57.5	6	13.5	—	—	1	1.5	8	7.0	13	315.0	8	10.5	8	71.0	2	7.0	9	25.0	—	—	63	508.0
Williamsburg	7	1.9	20	24.8	17	44.7	12	15.8	19	59.2	99	309.0	233	484.3	239	1,309.8	258	1,951.6	45	285.2	24	145.5	12	11.0	985	4,642.8
York	8	9.4	11	13.3	3	4.0	—	—	2	7.0	6	3.4	34	78.6	11	9.1	38	183.1	19	44.9	9	9.8	—	—	141	362.6
State Totals	387	1,494.9	713	3,016.3	520	1,518.9	219	427.0	280	840.8	1,125	3,498.1	2,601	11,848.3	2,711	22,342.0	3,517	39,323.2	1,159	5,850.3	804	3,311.9	369	1,437.3	14,405	94,909.0

**TABLE 6 — CLASSIFICATION BY CAUSES
FOREST FIRES
Fiscal Year 1980-81**

<i>Causes</i>	<i>Number of Fires</i>	<i>Percent of Total Number</i>	<i>Area Burned (Acres)</i>	<i>Average Area Per Fire (Acres)</i>
Lightning	175	1.2	1,145.4	6.5
Campfire	71	0.5	509.7	7.2
Smoking	1,420	9.9	4,441.4	3.1
Debris Burning	3,026	21.0	20,536.7	6.8
Incendiary	7,430	51.6	59,240.9	7.9
Equipment Use	495	3.4	1,786.5	3.6
Railroad	576	4.0	3,752.3	6.5
Children	706	4.9	1,292.1	1.8
Miscellaneous	506	3.5	2,204.0	4.4
TOTALS	14,405	100.0	94,909.0	6.6

**TABLE 7 — CAUSES OF FIRES — FIVE YEAR PERIOD
(Percent of Total)**

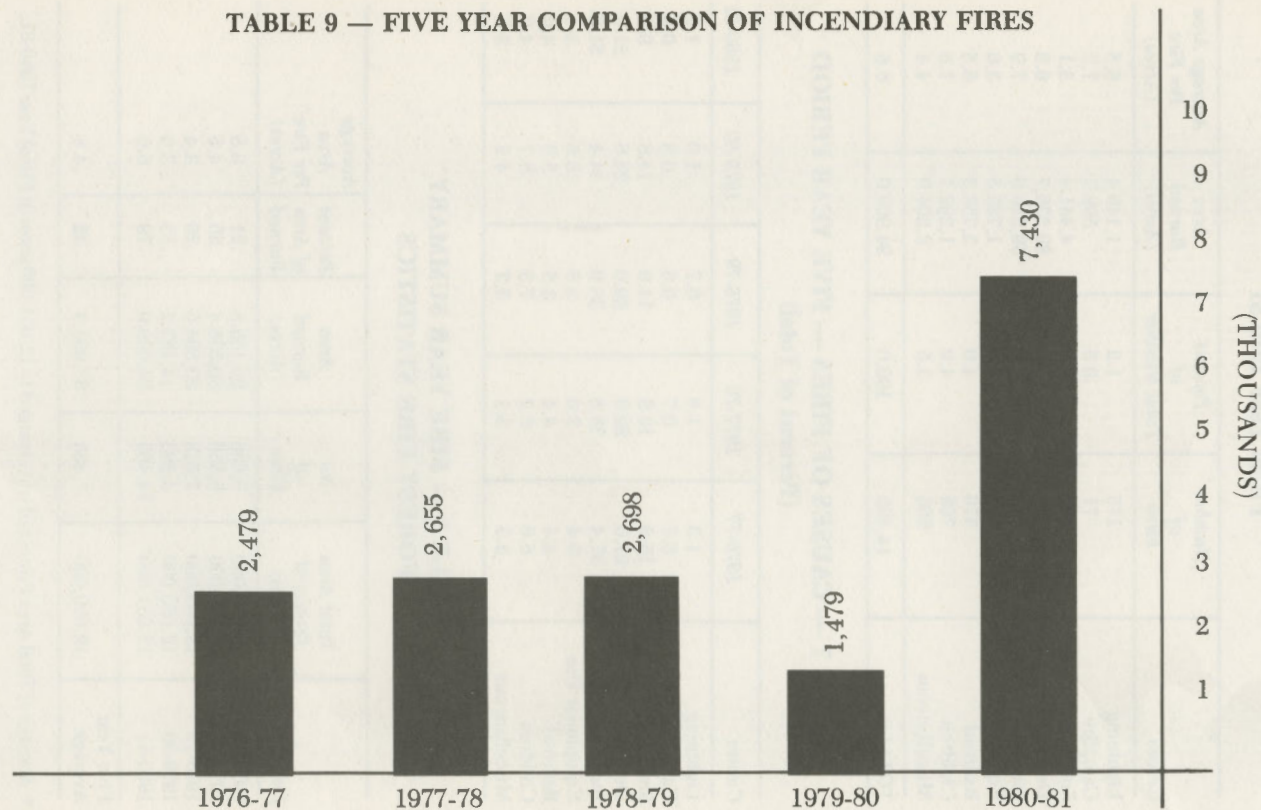
<i>Causes</i>	<i>1976-77</i>	<i>1977-78</i>	<i>1978-79</i>	<i>1979-80</i>	<i>1980-81</i>
Lightning	1.3	1.8	0.7	1.0	1.2
Campfire	0.7	0.7	0.6	0.8	0.5
Smoking	15.9	12.2	14.0	14.8	9.9
Debris Burning	27.0	29.9	29.0	25.6	21.0
Incendiary	37.4	38.8	38.0	34.4	51.6
Equipment Use	3.4	3.0	3.5	5.5	3.4
Railroad	4.4	4.4	3.5	5.0	4.0
Children	6.6	6.2	7.3	8.7	4.9
Miscellaneous	3.3	3.1	3.3	4.2	3.5

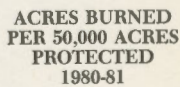
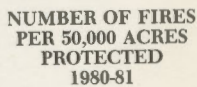
**TABLE 8 — FIRE YEAR SUMMARY
FOREST FIRE STATISTICS**

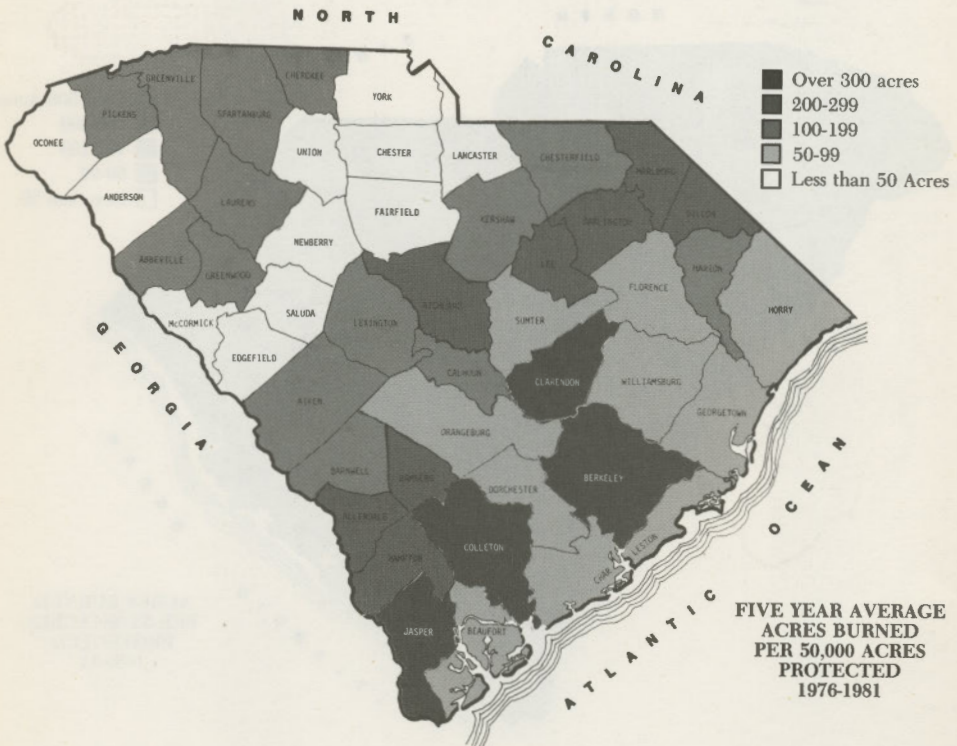
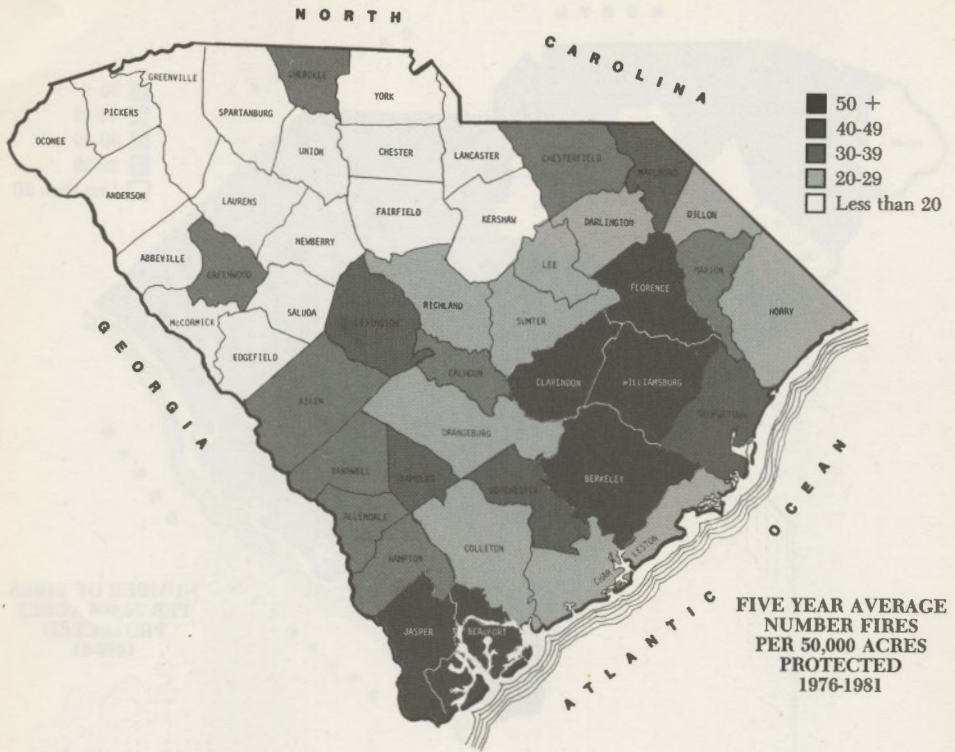
<i>Fiscal Year</i>	<i>Total Area Protected (Acres)</i>	<i>No. of Fires</i>	<i>Area Burned (Acres)</i>	<i>Percent of Area Burned</i>	<i>Average Area Per Fire (Acres)</i>
1976-77	12,050,000	6,636	25,138.8	.21	3.8
1977-78	12,050,000	6,836	30,536.4	.25	4.5
1978-79	12,050,000	7,018	23,894.6	.20	3.4
1979-80	12,050,000	4,293	14,483.2	.13	3.6
1980-81	12,031,090*	14,405	94,909.0	.79	6.6
Five Year Average	12,050,000	7,838	37,992.4	.32	4.8

* Acreage of Total Area Protected was changed to 12,031,090 acres in Fiscal Year 1980-81.

TABLE 9 — FIVE YEAR COMPARISON OF INCENDIARY FIRES







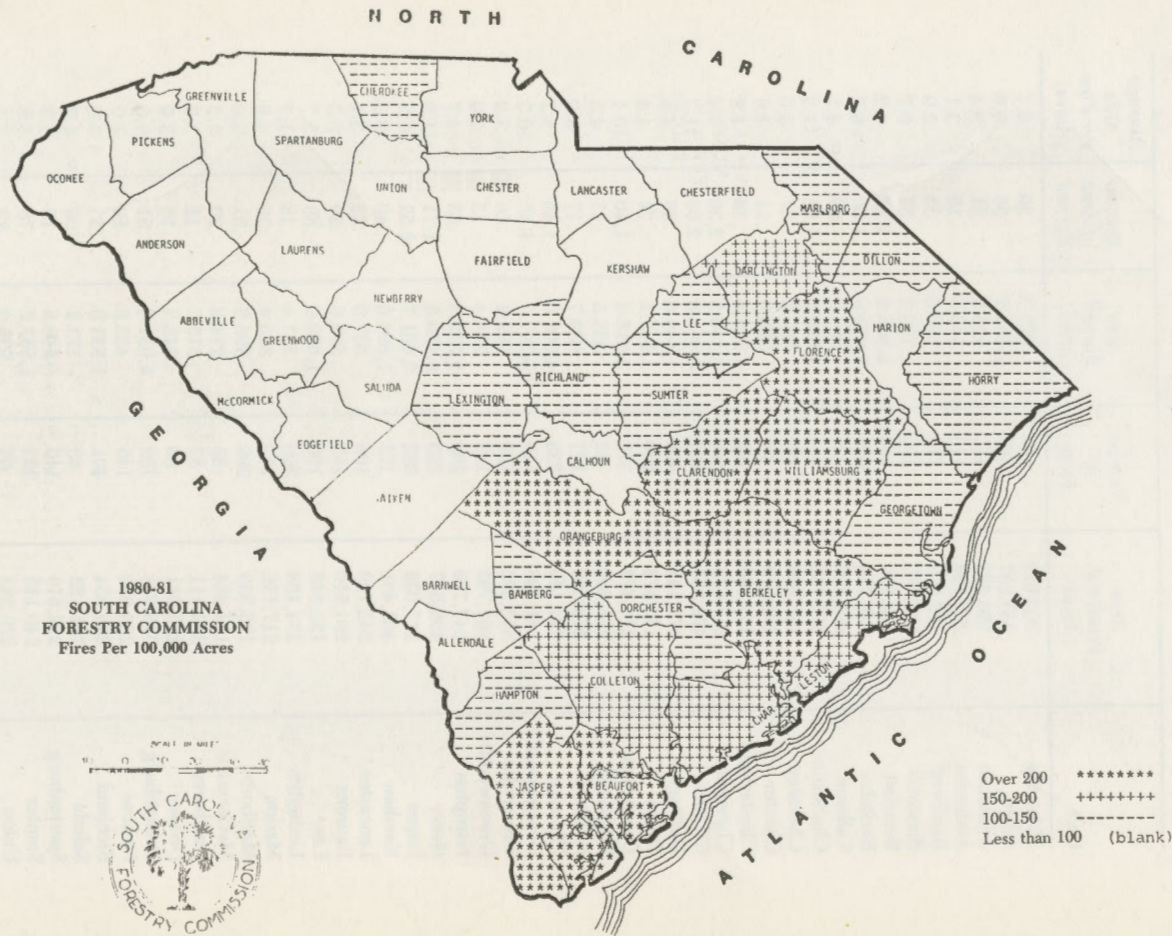


TABLE 11—FOREST FIRES REPORTED IN SOUTH CAROLINA

Fiscal Year 1980-81

<i>Unit</i>	<i>Area Protected (Acres)</i>	<i>Number of Fires</i>	<i>Area Burned (Acres)</i>	<i>Percent of Area Burned</i>	<i>Average Area Per Fire (Acres)</i>
Abbeville	205,619	93	620.8	.30	6.7
Aiken	433,387	367	2,331.2	.55	6.6
Allendale	156,223	152	823.9	.51	5.4
Anderson	227,594	113	345.5	.15	3.1
Bamberg	149,603	178	520.0	.35	2.9
Barnwell	123,617	106	708.3	.57	6.7
Beaufort	153,166	444	1,868.8	1.22	4.2
Berkeley	391,789	1,059	7,069.6	1.80	6.7
Calhoun	134,105	95	388.3	.29	4.1
Charleston	262,798	414	4,890.9	1.86	11.8
Cherokee	162,976	165	597.2	.37	3.6
Chester	283,949	69	320.8	.11	4.6
Chesterfield	355,398	262	1,268.4	.36	4.8
Clarendon	217,876	610	5,140.5	2.36	8.4
Colleton	479,853	857	10,001.8	2.08	11.7
Darlington	171,141	304	1,446.6	.85	4.8
Dillon	145,574	240	1,047.2	.72	4.4
Dorchester	273,472	378	3,818.8	1.40	10.1
Edgefield	208,660	83	358.5	.17	4.3
Fairfield	378,650	127	633.7	.17	5.0
Florence	291,159	739	4,208.0	1.45	5.7
Georgetown	381,198	535	5,527.3	1.45	10.3
Greenville	315,925	229	892.4	.28	3.9
Greenwood	201,795	143	268.4	.13	1.9
Hampton	247,779	280	1,312.3	.53	4.7
Horry	496,547	720	8,480.6	1.71	11.8
Jasper	317,032	962	8,001.7	2.52	8.3
Kershaw	403,461	173	1,606.6	.40	9.3
Lancaster	242,709	106	537.0	.22	5.1
Laurens	294,516	183	599.6	.20	3.3
Lee	122,845	190	1,092.0	.89	5.7
Lexington	284,158	300	521.4	.18	1.7
Marion	217,136	179	825.4	.38	4.6
Marlboro	175,333	296	896.3	.51	3.0
McCormick	134,484	85	274.8	.20	3.2
Newberry	262,111	87	315.3	.12	3.6
Oconee	215,041	89	348.3	.16	3.9
Orangeburg	376,278	752	4,931.3	1.31	6.6
Pickens	228,839	145	435.0	.19	3.0
Richland	288,854	401	1,533.9	.53	3.8
Saluda	194,122	43	173.2	.09	4.0
Spartanburg	292,516	140	546.8	.19	3.9
Sumter	240,153	323	1,867.2	.78	5.8
Union	220,583	63	508.0	.23	8.1
Williamsburg	392,392	985	4,642.8	1.18	4.7
York	278,674	141	362.6	.13	2.6
State Totals	12,031,090	14,405	94,909.0	.79	6.6

TABLE 12
STATE SUMMARY
LAW ENFORCEMENT INFORMATION
Fiscal Year 1980-81

	<i>Camden</i>	<i>Florence</i>	<i>Kingstree</i>	<i>Newberry</i>	<i>Orangeburg</i>	<i>Spartanburg</i>	<i>Walterboro</i>	<i>State Totals</i>
PART A. NO. OF VIOLATIONS								
1. Willful and Malicious	17	8	109	42	—	37	13	226
2. Intentional	532	1,254	2,141	32	710	230	2,281	7,180
3. Careless and Negligent	537	650	828	370	828	501	722	4,436
4. Other Violations	4	—	—	13	2	—	—	19
5. Total Violations (1-4)	1,090	1,912	3,078	457	1,540	768	3,016	11,861
6. Notification Violation	87	13	13	11	50	9	50	233
7. Total All Violations (5&6)	1,177	1,925	3,091	468	1,590	777	3,066	12,094
8. No. Fire Law Violations	366	557	76	433	353	308	265	2,088
PART B. NO. OF PROSECUTIONS								
1. Willful and Malicious	—	—	—	—	—	—	—	—
2. Intentional	—	—	—	—	—	—	—	—
3. Careless and Negligent	5	9	20	—	11	14	4	63
4. Notification Law	4	3	16	4	6	—	7	40
5. Other Violations	—	—	—	—	1	—	—	1
6. Total	9	12	36	4	18	14	11	104
PART C. NO. OF CONVICTIONS								
1. Willful and Malicious	—	—	—	—	—	—	—	—
2. Intentional	—	—	—	—	—	—	—	—
3. Careless and Negligent	5	7	18	—	9	14	3	56
4. Notification Law	4	3	16	4	6	—	5	38
5. Other Violations	—	—	—	—	1	—	—	1
6. Total	9	10	34	4	16	14	8	95

TABLE 13
ANNUAL BURNING NOTIFICATION SUMMARY
S. C. State Commission of Forestry
Fiscal Year 1980-81

<i>County</i>	<i>Number Notifications Received</i>	<i>Number Fires Escaped</i>	<i>Number Technical Violations</i>
Abbeville	829	4	2
Aiken	5,055	24	31
Allendale	458	18	4
Anderson	1,072	1	1
Bamberg	851	21	54
Barnwell	1,567	23	9
Beaufort	2,260	32	38
Berkeley	2,381	13	98
Calhoun	413	8	11
Charleston	1,790	14	2
Cherokee	745	1	1
Chester	282	2	6
Chesterfield	1,856	16	12
Clarendon	966	22	—
Colleton	3,967	61	1
Darlington	440	10	—
Dillon	1,090	3	—
Dorchester	720	4	2
Edgefield	296	6	—
Fairfield	1,653	16	3
Florence	1,027	2	—
Georgetown	1,937	35	6
Greenville	4,025	11	8
Greenwood	1,524	3	4
Hampton	2,399	54	2
Horry	1,829	3	3
Jasper	1,654	39	—
Kershaw	2,554	1	—
Lancaster	523	8	45
Laurens	696	6	1
Lee	373	12	137
Lexington	6,270	12	2
Marion	755	6	—
Marlboro	667	6	—
McCormick	171	2	5
Newberry	677	7	—
Oconee	1,950	6	—
Orangeburg	1,522	48	4
Pickens	1,045	6	—
Richland	659	—	—
Saluda	344	1	—
Spartanburg	840	1	—
Sumter	1,549	83	—
Union	130	1	—
Williamsburg	1,508	39	1
York	1,773	12	4
State Totals	67,092	703	497

INFORMATION AND EDUCATION

Introduction

South Carolina's 12.5 million acres of forest land provide an annual return of approximately 2 billion dollars in growing, harvesting, manufacturing, transporting and sale of forest products.

The needs of our ever-increasing population demand that each forest acre produce the maximum amount of usable wood, protect soil and water supplies, and provide for the recreational needs of the citizens of the state. Projections indicate that, while the South is now supplying 35% of the nation's softwood needs, by the year 2030, it will be expected to produce more than 50%.

Every Forestry Commission employee participates in an education program designed to reach every South Carolinian. Through various means citizens are made aware of their responsibilities to conserve our natural resources so that present and future generations may use and enjoy them to their fullest.

Supporting the state's third largest manufacturing industry, our forests provide a livelihood for thousands of people. Yet the state's woodlands are producing only half of their potential. The aim of the Commission's information and education program is to help the land-owners and people of the state realize the potential value of our woodlands and apply the necessary conservation practices that can double timber production.

The 1978 Forest Survey points to the need for heavy emphasis on improvement of practices on farm and other non-industrial or government-owned woodlands. These lands constitute two-thirds of the commercial forest land of the state but are producing far less than their share of usable wood and wood fiber. Increased production here will serve as the key to meeting the expected demands.

Points stressed in the Commission's information and education efforts in promoting wise land use are:

1. Forest fire protection: Some 14,405 (only 175 caused by lightning) illegal woods fires burned during the year in South Carolina — 99 percent being caused by people!

2. Unwise cutting practices mean low production and inferior forest products.

3. Trees should be planted on some three million acres of idle or unproductive land.

4. Improve the quality of many existing stands of timber throughout the state by removing inferior species and poor quality trees and promoting active interest in a program of superior tree development through genetics.

5. Stress the vital importance of woodlands and good land management practices to the maintenance of good soil, water, and wildlife resources of the state.

6. Develop appreciation in the use, protection, and support of South Carolina's great recreational potential that exists in public and private woodlands to serve the recreational needs of the people of the state.

Forest Fire Prevention

In the Commission's 1929 Annual Report, Lewis E. Staley, then State Forester, said, "While light burning may not kill the larger trees, unquestionably the basis for the future forests — the baby trees — are practically all destroyed. This is an indisputable fact." To this day, it is upon this "indisputable fact," that even little fires kill little trees, that the primary approach of the Commission to forest fire prevention is based. Through a program beginning with personal contacts, the need for preventing wildfires is brought to the attention of every man, woman, and child in the state. Forestry Commission personnel also utilize other media of communication such as posters, exhibits, publications, illustrated talks, newspaper articles and radio and television programs to bring the conservation message to each citizen of the state. During the year some 1,470 programs of various kinds were presented by Commission personnel to over 36,042 people of all ages. The number of television and radio programs is included; however, the number of viewers or listeners cannot be determined.

During the year, considerable work has been done in problem areas of the coastal plains in helping district and county personnel formulate an intensified educational program and fire prevention plan based on a thorough investigation into causes, attitudes, and habits of local people. Persistent follow-up helps assure that details of plans laid are carried out and that every possible prevention tool is used effectively to bring the occurrence of wildfire and the subsequent loss of valuable woodland down to an acceptable level.

Cooperative Forest Fire Prevention Campaign

The Cooperative Forest Fire Prevention Campaign supplements local materials and programs with those produced in cooperation with the federal government and other states. It reinforces local efforts to reach, in one way or another, every man, woman, and child within the state. This national program, featuring Smokey Bear, is guided by the Advertising Council, Inc., in cooperation with the State Foresters and the U. S. Forest Service. The program is backed by American business as a public service campaign. The advertising agency, Foote, Cone and Belding, of Los Angeles, California volunteers time and services to prepare materials to make the Cooperative Forest Fire Prevention Campaign one of the nation's most outstanding public service campaigns. Smokey Bear's campaign in South Carolina utilizes a wide variety of materials including posters, booklets, bookmarks, newspaper

ads, radio platters, TV films, and other material to bring forest fire prevention information and reminders to people of all ages.

A number of products licensed to use the Smokey Bear symbol, and carrying a forest fire prevention message, provide additional ways of reaching people with fire prevention reminders.

Southern Cooperative Forest Fire Prevention Campaign

Recognizing the need for a more southern slant than the national campaign can provide, twelve states and the U. S. Forest Service in the South have continued to cooperate in the production of forest fire prevention materials with a southern flavor. The nineteen year's operation of the southern program saw continued production of recorded radio spots, a series of TV spots, and news ads which are currently being distributed. The southern materials supplement the national materials to intensify and strengthen forest fire prevention efforts in South Carolina. Produced by the advertising agency, Liller, Neal Weltin, Inc. of Atlanta, Georgia, it is coordinated through The Advertising Council, Inc.

School Program

School children throughout the state receive basic information on forestry and forest fire prevention from Forestry Commission foresters, rangers and wardens. Some 247 programs were held in the elementary grades, where schoolyard demonstrations of fire control equipment and suppression techniques, flip charts and color slides were used to help bring the conservation story to the classroom; 9,406 school children were given basic information about the conservation of our forest resources. This includes Arbor Day demonstrations and slide programs which were held in vocational agriculture classes in each county.

In addition to the slide programs and demonstrations, third grade children throughout the state received copies of the booklet "Smokey Bear's Story of the Forest" and copies of a Smokey Bear coloring sheet. An equal number of first grade students received Smokey Bear coloring sheets with forest fire prevention and conservation messages. Second grade students received a 12-inch rule which carries the metric scale as well. Fourth graders received a schoolyard or classroom demonstration of basic forest fire suppression methods and tools and a booklet "The Junior Forest Ranger Handbook." Fifth graders received copies of a booklet "Our Woodland World."

Movies on forest conservation and forest industries were also shown in schools, bringing conservation information to students of all grade levels.

The Commission's school programs are designed to add to each child's understanding of the total stewardship of life, building toward a stronger and more appreciative community of the future. The programs give

basic information to children on the value of woodlands and the care needed to make them produce and contribute to a prosperous future.

Forestry Demonstrations

During the year 7,980 persons attended 175 demonstrations conducted by personnel of the Forestry Commission. These demonstrations covered forest fire protection, correct cutting methods, utilization of forest products, reforestation, control of undesirable species, and timber stand improvement.

In most cases demonstrations were held in cooperation with foresters of various companies, the Clemson University Extension Service, and other groups and organizations.

Arbor Day

Many people, agencies and organizations cooperated to make the observance of 1980 Arbor Day and Conservation Week a success. South Carolina law designates the first Friday in December as Arbor Day. The State Commission of Forestry, Garden Clubs, Federated Women's Clubs, schools, churches, civic and patriotic organizations, newspapers, radio and television stations and others cooperate in placing the challenge of conservation before the people of South Carolina.

As in the past, a special folder was distributed to schools and other groups to assist them in planning programs and observances for Arbor Day and Conservation Week.

Forestry Commission personnel gave numerous talks at Arbor Day meetings. Many of the programs included tree planting exercises.

Tree City, USA

The National Arbor Day Foundation, upon recommendation by the State Forester, recognizes cities that are dedicated to improving the urban environment with trees. To qualify a community must meet the following standards: a city tree ordinance, a legal tree governing body, a comprehensive urban forestry program, and observance of Arbor Day. Four cities received the honor in 1981 for their 1980 accomplishments: Cheraw, third year; Columbia, second year; Florence, first year; and Marion, first year.

Project Learning Tree

A workshop introducing Project Learning Tree to South Carolina educators was held at White Oak Conference Center in Fairfield County, February 26-28, 1981. Sixty educators and foresters attended.

Project Learning Tree is a forestry based interdisciplinary environmental education format developed by the Western Regional Environmental Education Council for the American Forestry Institute. Al-

though the materials are free to educators, they are available only to those individuals who have been trained in their use. Presently Project Learning Tree has been introduced into 30 states. Over 30,000 people have received instruction in the materials.

Project Learning Tree is a cooperative effort of the State Department of Education and the Commission. Financial support is provided by Forest Industry.

Motion Pictures

Motion pictures are valuable aids in teaching conservation and films are often used to supplement talks. Each district office has motion picture equipment which is used for forestry motion picture showings in every county in the state.

This year these films were shown a total of 268 times to over 9,685 people.

Films on forest fire control, forest management, reforestation and other forestry subjects are shown to school and church groups, civic clubs, community organizations and others.

The Forestry Commission maintains a film library making available many forestry and conservation films. These are loaned free of charge to any group, school, or civic organization.

Vocational Agriculture Forestry Program

In 1930 forestry was added as a course of study in vocational agricultural classes in South Carolina. Each year the Agricultural Education staff of the State Department of Education and the State Commission of Forestry work together to teach vocational agriculture students the importance and techniques of forest conservation.

On school forest laboratories the students construct firebreaks to protect their laboratory from fire. They learn to plant trees, control weed trees, select, measure and estimate merchantable volumes in trees which are to be harvested. Timber in need of cutting is marked and cut by the students in many cases and is sold under contract as the students learn to market forest products. The laboratory is divided into a number of small plots to be worked one each year. One plot is left untreated to compare with plots where good forestry practices are carried out.

Foresters employed by the Forestry Commission throughout the state conducted 20 programs for vocational agriculture teachers and students. These programs were attended by 580 persons.

Resource-Use Education

Resource-use and environmental education continue to stimulate interest in the out-of-doors as an aid to effective teaching, as well as a means of instilling conservation concepts.

Forestry Commission personnel participated in two teacher's workshops in environmental education during the year. These were held at the University of South Carolina and Clemson University.

As a member of the Governor's Natural Resources Education Council created July 20, 1980, the Forestry Commission assisted in drafting a "South Carolina State Plan for Natural Resources Education." Through the Council, comprised of thirteen state agencies concerned with education and the state's natural resources, serious efforts will be made throughout the state's school systems and public media generally "to enable the citizens of South Carolina to acquire the knowledge and appreciation needed to protect, enhance, and wisely manage the state's natural resources."

The major objectives of the State Plan for Natural Resources Education are:

- To ensure that the essential elements of natural resources education are presented to the citizenry of the State.

- To ensure the involvement, cooperation and coordination of state and private concerns in natural resources education.

- To ensure enough qualified people to teach natural resources education at all levels (elementary, secondary and post secondary).

- To ensure that all literature, facilities and personnel in areas of natural resources education outside the formal education system are available to the public.

- To ensure the formulation of new and supplemental materials relating to South Carolina's natural resources necessary to increase understanding.

- To ensure the complete and comprehensive distribution of information.

The lesson plans for environmental investigation and the teacher's guides used extend the opportunities for teachers to use the natural resources of the school grounds and adjoining properties as an extension of their classrooms for practical and enjoyable learning.

Talks

State Commission of Forestry personnel give talks about forestry before many groups. The use of color slides with many of the talks helps make them more interesting and more effective.

During the year 350 talks were made by Commission personnel to 9,871 people. This does not include the talks made in connection with the 5th and 6th grade programs at schools throughout the state. Civic clubs, church groups, school groups, and other organizations were among those requesting talks.

Person-to-person talks with landowners and others continued to be one of the main ways Commission personnel pass along information on

forestry to South Carolinians. Important points of contact between personnel of the Commission and the public are 140 fire towers where 6,545 persons visiting saw the work of detecting, reporting, dispatching, fighting and preventing fires explained or demonstrated.

Exhibits

Exhibits provide an excellent means of disseminating forestry information.

More than 1,470,900 people saw forestry exhibits and displays in fairs, parades, and special meetings as follows:

*Exhibits, Floats and Displays
for Special Events
(Other than County or State Fairs)*

	<i>Estimated Attendance</i>
Camden District	124,000
Florence District	41,300
Kingstree District	21,500
Newberry District	76,950
Orangeburg District	158,600
Spartanburg District	87,000
Walterboro District	<u>105,050</u>
Total Estimated Attendance — Exhibits, Floats and Displays for Special Events	614,400

Exhibits at State and County Fairs

<i>County Fair</i>	<i>Type of Exhibit</i>	
Camden	Flowers of the Forest	3,000
Lancaster	Flowers of the Forest	3,000
Sumter	Flowers of the Forest	40,000
Florence	Fair Exhibit	100,000
Loris	Fair Exhibit	6,000
Marion	Fair Exhibit	14,000
Clarendon (Manning)	Smokey's Commandments	10,000
Abbeville	Flowers of the Forest	8,500
Chester	Sweetgum Cross Section	10,000
Greenwood	Flowers of the Forest	35,000
Laurens	Flowers of the Forest	20,000
Newberry	Sweetgum Cross Section	15,000
Pickens (Upper State District)	Judge Smokey	80,000
Spartanburg (Piedmont Interstate)	Judge Smokey	65,000
Union	Judge Smokey	25,000
York	Judge Smokey	20,000
Hampton	Fishing Pole	2,000
Total Estimated Attendance County Fair Exhibits		456,500
State Fair (Columbia)		400,000
Total Estimated Attendance Fair Exhibits		856,500
TOTAL — Exhibits, Floats, Displays for Special Events		614,400
GRAND TOTAL		1,470,900

Radio and Television

Radio and television stations in South Carolina cooperate generously with the Forestry Commission by providing air time for many programs and announcements on forest fire prevention, forest management and other phases of forestry. Very good coverage was given the critical fire season which developed in late winter and spring of 1981.

Several districts have regularly scheduled programs on various radio stations.

A number of television programs were presented on forest fire prevention and other forestry information. Records show that at least 430 live or taped radio and TV programs on forestry were presented during the year. This number does not include the hundreds of recorded programs and film spots carried by radio and television stations, using material made available through the National and Southern Cooperative Forest Fire Prevention Campaigns, and spot announcement material prepared by the Forestry Commission for special use during periods of high fire danger.

In-service videotape capabilities of the Commission produced three training tapes:

- The Basic Suppression Unit (26 minutes)
- Hand Tools for Fire Suppression (14 minutes)
- Prescribed Burning (6 minutes)

One general tape:

Fire (8 minutes)

and three 30-second Public Service Announcements:

Burning Notification (distributed to 10 TV stations)

Tree Planting (distributed to 12 TV stations)

Forest Management (distributed to 12 TV stations)

Training tapes produced are used as an integral part of the Commission's on-going personnel training program and are available to other agencies and industry where the subject matter might be of assistance to them.

News Releases and Articles

Newspapers provided excellent coverage, placing forestry news and information before the people regularly. During the 1981 spring fire season the wire services and press in general gave "front page" coverage to the worst forest fire season in the state's history.

During the year Commission personnel prepared 625 news articles. This is not a complete picture of the news coverage that the Commission received during the year. Many times, such as during the serious fire situation, news items are telephoned to individual papers and to the wire services. Many stories were written by newspaper editors and reporters.

In addition to news releases, a number of feature articles on forestry were prepared. Photographs or mats illustrating the story were often included with the feature. Commission personnel in every county of the state prepare news articles. In this way, news is localized.

Publications

The State Commission of Forestry utilizes a wide variety of publications to carry out its information and education program. One important function of printed materials is to provide detailed information to those who request forestry information.

Beginning with a spring (January-February-March), 1979 issue, the Commission publishes an intra-agency quarterly which is designed to keep all Commission employees and County Forestry Board Members abreast of personnel and general Commission activities.

Over the years the Commission has reprinted a number of booklets, folders, leaflets, and other materials.

The Commission also distributes materials published by the U. S. Department of Agriculture, Clemson University, various forest industry companies and associations, and other organizations, groups, and agencies which publish material that is useful and applicable in South

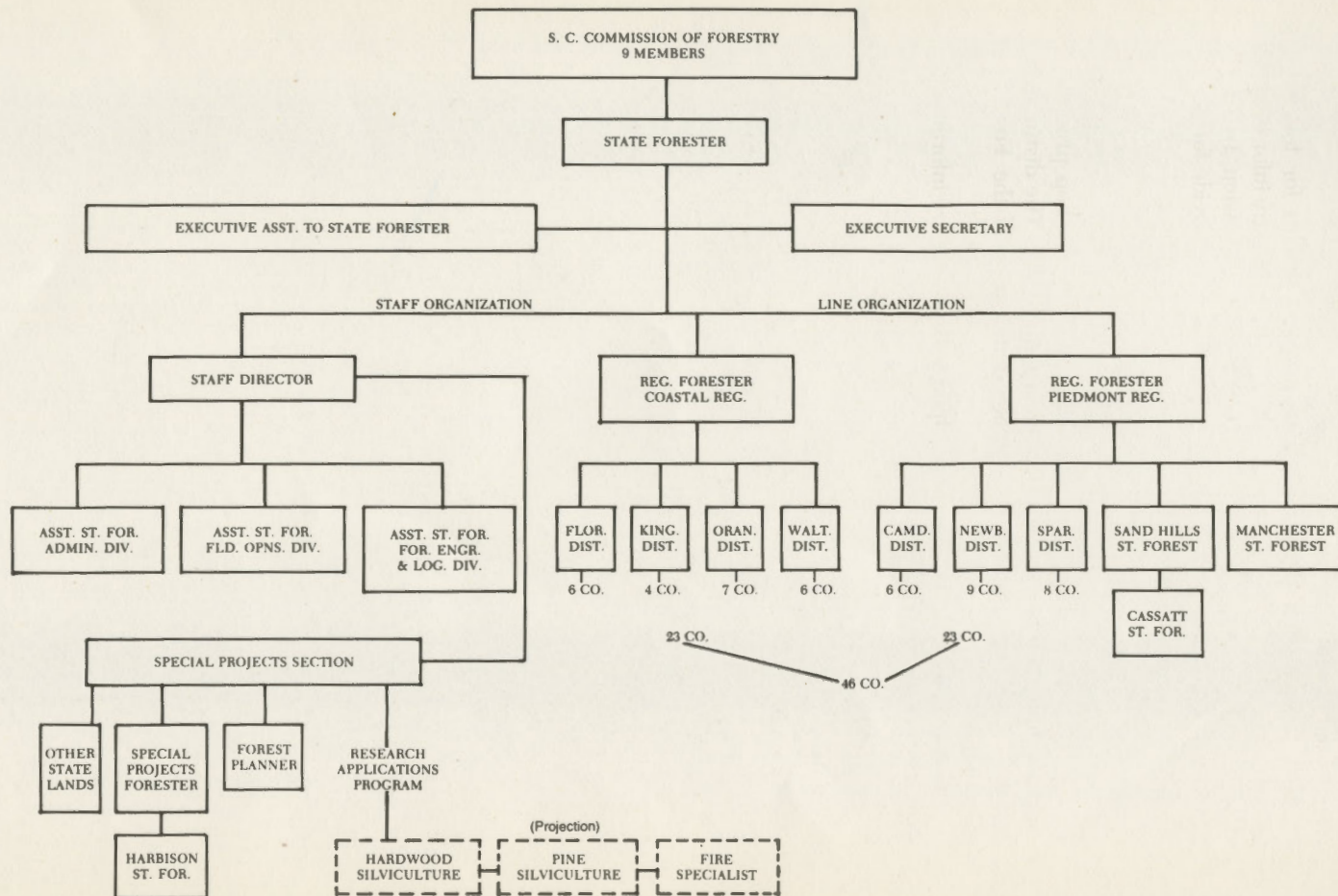
Carolina. The use of such material minimizes the need for printing special publications in many cases.

Also, Commission personnel often prepare articles for forestry magazines and other types of periodicals. This gives forestry information widespread distribution at little or no cost to the Commission. In some cases reprints of published articles are purchased to provide for additional distribution.

Sign, Woodworking and Exhibit Shop

The Commission's sign, woodworking and exhibit shop produces signs, exhibits, and other cabinet and carpentry work. The distinctive routed letter signs identify the various installations of the Forestry Commission.

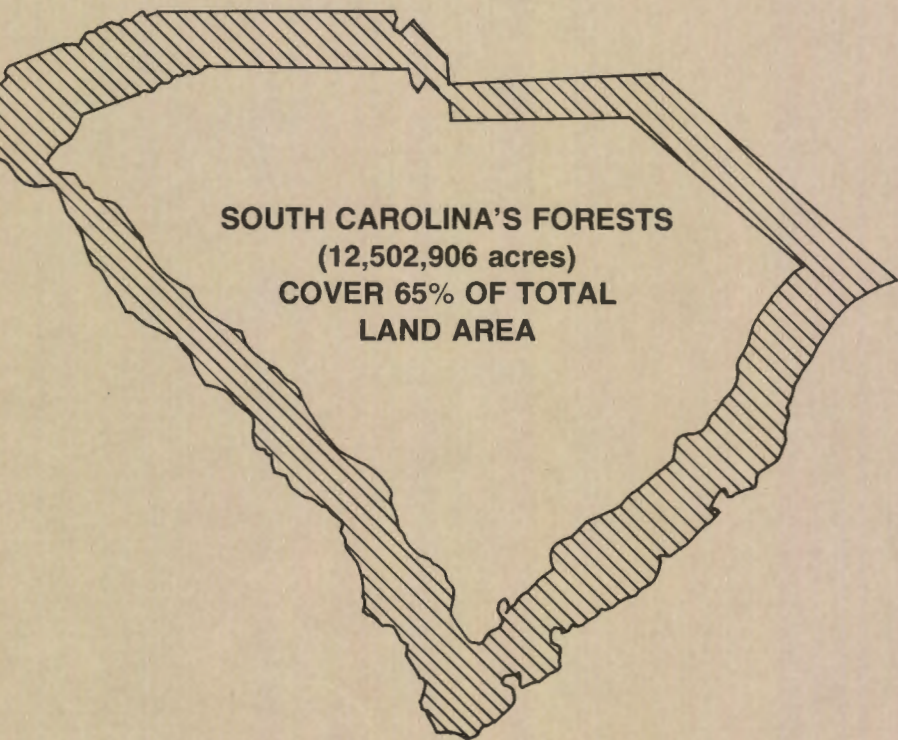
Exhibits constructed in the shop helped to bring forestry information to many people during the year.



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